

Site Asbestos Removal Response Action Work Plan

Minillas Complex North Tower, Santurce, PR

(Final)

AUGUST 22, 2012

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PART 1 - GENERAL

1.1 Introduction

1.1.1 Background

The asbestos removal response action work plan (“work plan”) of the Minillas North Tower (the “Building”) will be performed as a response action to reduce potential asbestos containing dust. Class III and Class IV asbestos work definitions under Title 29 of the Code of Federal Regulations 1926.1101(g)(9) and 1926.1101(g)(10) are also the frame of this activity. The scope of work includes the proper disposal of all related waste under the Title 40 of the Code of Federal Regulations Part 61 (Sub-part M). To determine the scope of the cleanup actions in this project, a characterization (background) sampling was done by the the Puerto Rico Public Buildings Authority (“PRPBA”) and a Confirmatory Sampling was completed by the US Environmental Protection Agency (“EPA”). Based on the results obtained from the implementation of the Characterization Protocol approved by EPA all levels, emergency stairways, elevator machine room, the elevator cabins (cars) and elevator shafts are included as part of the proposed cleanup action. See the summary of the characterization results included as Appendix I.

1.1.2 Building Description

The Building have 17 levels (Promenade to 17), a Ground level and the Elevator mechanical room in the roof-above 17th level. Also, contains two interior emergency stairways located at northwest and southeast sides providing access to all building levels. Each building offices level is approximately 18,000 square feet.

There are two elevators shafts in the Building and each elevator shaft serves three elevator units. The two shafts are known as North Shaft and South Shaft and they do not interconnect with each other. The south elevator system serves the Ground level thru the 17th and the north elevator system serves the Ground Level thru the 16th.

The Building has supply and return chases used to handle the supply and return air to the floors. It has two chases (east and west) which are physically divided on level 9th. Levels 17th to 9th share the same air conditioning (A/C) system unit which air flow is up to down; levels P to 8th share the other A/C system which air flow is down to up. The ground level and the Elevator machine room have separated and dedicated air console units not interconnected with other building areas. Currently A/C systems are in operation in the Building in order to, as extent possible, maintain ordinary operational conditions of such systems. Exhausts from the currently operating

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A/C system are being filtered with HEPA filters. The exhaust (*louver*) located in the elevator machine room (*i.e.*, above Level 17) currently does not have a filter in place. This is the only exhaust/ventilation that the elevator machine room has. In order to further ensure that containment is maintained especially during operation of elevators, in the event that negative air machines (NAMs) are not adequate on start up, a High Efficiency Particulate Air (HEPA) filter will be placed in the mentioned exhaust prior to the commencement of any cleanup activities. The HEPA filter will be removed from this exhaust after all cleanup activities are completed and the work areas are cleared.

1.2 Scope

The scope of this work plan is the following:

- To immediately conduct cleanup activities at all "work areas" identifies as Levels (17th to Ground), the emergency stairways, the elevator machine room, the elevator cabins (cars), the elevator's shafts and the A/C system supply and return ducts. Refer to Appendix II for the detailed cleanup sequence per work area and to Appendix III for the Technical Memorandum applicable to elevator cabins (cars), shafts, and pits as included in this work plan.
- The Building owner may decide to discard (as asbestos waste) furniture, ceiling tiles, ducts and other finished surfaces or elements which will be handled and disposed of as asbestos waste.
- Implement adequate engineering controls to isolate work areas from the rest the building.
- Establish safety procedures for the all personnel inside work areas response action.
- Perform personal and area air sampling during cleanup activities under National Institute for Occupational Safety and Health ("NIOSH") 7400 method to demonstrate safety compliance with the standards of the Occupational Safety and Health Administration ("OSHA").
- Perform work area final clearance air sampling after activities under NIOSH 7400/7402 method to demonstrate compliance with EPA, the Puerto Rico Occupational Safety and Health Administration ("PROSHA"), and Puerto Rico Environmental Quality Board (PREQB) standards of indoor air quality for re-occupancy.
- Perform wipe sampling and microvac sampling after cleanup activities following American Society for Testing and Materials ("ASTM") D6480 or D5575 method as EPA condition.
- Establish and implement a sequenced and structured the cleanup process.
- Provide a preliminary schedule for implementation of the Work Plan.

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1.3 Sequence of Cleanup Process:

This sequence of the cleanup process is provided for informational purposes only and shall be adjusted in the field as deemed appropriate or necessary by the Project Coordinator, the EPA oversight and the selected contractor(s). Accordingly, the following is a summary, for the more specific timing of the work please see Appendix IV:

- Will start with the Ground Floor Final decontamination unit construction, Isolation, critical barriers, equipment decon & waste-load out construction, placement and testing of the required number of negative air machines/equipment. As part of this first activity and in order to further ensure that containment is maintained especially during operation of elevators, in the event that NAMs are not adequate on start up, a HEPA filter will be placed in the exhaust (louver) located in the Elevator Machine room (i.e., above Level 17).
- Will continue with the South Elevator shaft where two elevator cars will be designated for the gross or preliminary decontamination units and waste load-out units to be set up per each level. The three south cars need to be cleaned and cleared first as two of them will be used for internal transport during clean up. The cars must be re-cleaned and re-cleared at the end of the whole clean up process. See Appendix III.
 - Will follow the upper Elevator Mechanical Room (Building's roof). The condition of the HEPA filter placed in the exhaust (louver) located in the this area will be confirmed prior to cleanup of this work area. After cleanup has been completed, the level will be isolated by sealing the door to the room with two layers of 6-mils polyethylene plastic and tape. The HEPA filter will be removed after all cleanup activities have been completed in the Building.
 - Will follow by the cleaning of Levels 17 to 9. This sequence takes into consideration these floors' A/C system air flow pattern and it is established in order to ensure that clearance air sampling includes samples from an uncontaminated supply air and return A/C system, the cleaning process will follow the A/C system air flow pattern. Together with the placement of critical barriers and other measures proposed in Section 2.6.2, this sequence ensures that the supply air will move from uncontaminated areas to contaminated areas. After cleanup has been completed, each level will be isolated by sealing the two still open elevator doors with two layers of 6-mils polyethylene plastic and tape.
 - Will follow by the cleaning of Levels P to 8 (ground level has independent A/C units to be cleaned as well). This sequence takes into consideration these floors' A/C system air flow pattern and it is established in order to ensure that clearance air sampling includes samples from an uncontaminated supply air and return A/C system, the cleaning process will follow the A/C system air

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flow pattern. Together with the placement of critical barriers and other measures proposed in Section 2.6.2, this sequence ensures that the supply air will move from uncontaminated areas to contaminated areas. After cleanup has been completed, each level will be isolated by sealing the two still open elevator doors with two layers of 6-mils polyethylene plastic and tape.

- Emergency stairway pathways (northwest and southeast) are considered as separate work areas to be cleaned at the end of the level's clean up activities. Note that while the levels cleanup is ongoing the access to these stairways will be sealed with layers of polyethylene plastic provided with zip doors. These pathways will not be used during the cleanup process. In case of emergency these stairs can and will be used as access to the corresponding Emergency Response teams. See Appendix II. After cleanup has been completed, this work areas will be isolated by sealing the two still open elevator doors with two layers of 6-mils polyethylene plastic and tape.
- Then, the North Elevator shaft, cars and pits will be cleaned as well; these will not be used during the cleanup of the levels. See Appendix III. After cleanup has been completed, the work area will be isolated by removing the negative air machine and sealing the openings of the shaft with two layers of 6-mils polyethylene plastic and tape.
- After all other work areas are completed, the south elevator cars will be re-cleaned and re-cleared. See Appendixes II and III.
- Ground level will be cleaned at the end. (See Appendix II). After cleanup has been completed, each level will be isolated by sealing the two still open elevator doors with two layers of 6-mils polyethylene plastic and tape. Arrangements will be made for the six elevators which have been sealed, do not stop in the isolated levels.

Please refer to Appendixes II and III for a more detailed and comprehensive sequence per building level or the other mentioned work areas. For details on the placement and testing of negative air machines please see Section 2.9. For the segregation of work areas and installation and preparation of decontamination units, please see Section 2.8.

On May 16, 2012, EPA identified asbestos on settled dust on some areas of the Building. Related initial cleanup efforts were conducted and completed in several areas of the Building. These efforts were performed by the following contractors:

- Kemron (EPA contractor) – Exterior ground level area.
- Vanguard Caribe – Preliminary cleanup action in Level 9th, interior ground (G) level area, removal and disposal as asbestos of air conditioning systems (four air handling units) primary and secondary filters. Intallation of HEPA filters at all airhandling units. The exhaust

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from the currently operating A/C system are being filtered with HEPA filters. Weston was overseeing the cleanup of the units and the installation of the air filters.

- Sunset Contractors – Promenade Level and preliminary cleanup action in Level 11th

Vanguard Caribe and Sunset Contractors performed the cleanup activities as sub-contractors to Aireko Construction Corporation (“Aireko”), General Contractor for PRPBA, between May 28 and June 18, 2012.

1.4 Description of the Work Plan

1.4.1 The removal response action shall also include, but not be limited to the following:

- (a) Notification to regulatory agencies
- (b) Regulatory permits, licenses and approvals
- (c) Worker health and safety program
- (d) Air monitoring
- (e) Construction of temporary containment barrier/decontamination
- (f) Preparation for cleanup operations
- (g) Cleanup of existing asbestos dust and debris
- (h) Transport and disposal of asbestos-containing waste
- (i) Decontamination and equipment cleaning
- (j) Removal of temporary containment barrier/decontamination enclosures
- (k) Final job close-out

The Contractor(s) shall provide all necessary personnel, equipment and materials to perform the work set forth in this plan. Additional technical direction will be provided by the EPA On-Scene Coordinator (“EPA-OSC”), by the Project Coordinator, as necessary, through daily work orders.

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1.5 Definitions

1.5.1 Airlock: Two curtained doorways spaced a minimum of one meter apart from an airlock in the worker/equipment decontamination and waste load-out enclosures to be installed at all levels.

1.5.2 Air Filtration Units: A local exhaust unit, utilizing HEPA filtration and capable of maintaining a minimum negative pressure differential of 0.02 inches of water within the containment barrier with respect to that of the environment surrounding the containment barrier. The unit also cleans recirculated air or generates a constant air flow from adjacent areas into the cleanup work area through the decontamination enclosure. These units will be used during cleanup activities at all levels.

1.5.3 Air Monitoring: The process of measuring the fiber content of a specific volume of air during a stated period of time.

1.5.4 Air Pressure Monitoring: The process of measuring the air pressure differential between the containment barrier and the surrounding area using a micromanometer unit. The manometers will be used during cleanup activities at all levels.

1.5.5 Amended Water: Water to which a surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate applicable surfaces in the Asbestos Containing Areas.

1.5.6 ANSI: American National Standards Institute.

1.5.7 ASTM: American Society for Testing and Materials.

1.5.8 Asbestos: Asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

1.5.9 Authorized Person: Any person authorized by the PRPBA and required by work duties to be present in a regulated area.

1.5.10 Caulking: High-grade rubber base caulk for masonry and/or for other materials to be used or existing, as appropriate.

1.5.11 Class III asbestos work: means repair and maintenance operations, where asbestos containing materials is likely to be disturbed.

1.5.12 Class IV asbestos work: means maintenance and custodial activities during which workers contact but do not disturb asbestos containing materials and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

1.5.13 Clean Room: An uncontaminated area or room which is part of the cleanup worker decontamination enclosure, with provisions for storage of workers' or visitors' street clothing, protective equipment and uncontaminated materials and equipment. It may be used for changing clothes.

1.5.14 Cleanup: Procedures to control or eliminate asbestos dust from surfaces by means of HEPA vacuuming and wetting techniques.

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1.5.15 Cleanup Areas (CA): work areas that have exceeded the required cleanup benchmark established by EPA taking into consideration the potential presence of asbestos in settled dust.

1.5.16 Cleanup Work Area or Regulated Area: An zone established by the Contractor to demarcate areas where Class III and IV asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

1.5.17 Competent Person: In addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f). In addition, the competent person shall have successfully completed training for Class I, Class II, Class III, and Class IV projects meeting the criteria set forth in the EPA Model Accreditation Plan (40 CFR 763) for project designer or supervisor, and operations and maintenance training.

1.5.18 Containment Barrier: A temporary enclosure to be constructed in Levels 3 and 9 with fire-retardant plastic sheeting, suitable framing, and tape and other adhesives within the cleanup work area. This barrier serves to confine the asbestos cleanup and decontamination work, and to contain the release of asbestos containing dust and debris through the action of pressure differential ventilation and air filtration systems. The only entrance is via the cleanup worker decontamination enclosure.

1.5.19 Critical Barrier: The minimum structural components necessary to maintain the work area in airtight isolation from the surrounding areas. Critical barriers shall be placed at ventilation louvers, returns (when applicable) and other openings as necessary to achieve work area isolation before cleanup work is performed. If a temporary plastic sheeting/stud wall must be erected, it shall be treated as a critical barrier.

1.5.20 Curtained Doorway: A minimum 2-flap passageway to allow access or egress from one room to another while permitting minimal air movement between the rooms of the decontamination enclosure system. It is constructed by placing 2-3 overlapping sheets of plastic sheeting at least three feet wide over an existing or temporarily framed doorway. The sheets shall be weighted at the bottom so that they close quickly after being released.

1.5.21 Decontamination Enclosure: A serie of connected rooms with curtained doorways between each room, for the decontamination of the cleanup workers. A decontamination enclosure contains a minimum of three (3) separate rooms (typically with airlocks located between the rooms) consisting of an equipment room, shower room, and clean room. The system is constructed of an air-tight, impermeable, temporary barrier. Framing for enclosure shall be metal or fire retardant pressure impregnated wood. The main project entrance/egress to the project will be through Level G identified with the general decontamination unit.

1.5.22 Disposal Bag: A properly labeled minimum 6-mils thick, leak-tight plastic bag used for transporting asbestos waste from the cleanup work area to an EPA-approved disposal site for asbestos containing material waste.

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1.5.23 Disturbance: Contact which releases fibers from asbestos containing materials (or presumed as) or debris containing asbestos containing materials (or presumed as). This term includes activities that disrupt the matrix of these materials.

1.5.24 Enclosure: Procedures necessary to completely enclose material containing asbestos behind airtight, impermeable, permanent barriers.

1.5.25 Equipment Room: Under 29 CFR 1926.1101(j)(1)(i)(A) Class I and II Asbestos works is a contaminated area or room which is part of the decontamination enclosure, with provisions for storage of contaminated clothing and equipment and cleaning supplies for decontamination of equipment. Airlocks are required at all entrances to the equipment room. Under 29 CFR 1926.110 Class III Asbestos works 1926.1101(j)(2)(i) and (ii) the Equipment Room is an area that is adjacent to the regulated area for the decontamination of equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size as to accommodate cleaning of equipment without spreading contamination beyond the area (as determined by visible accumulations). This definition apply to all levels and areas.

1.5.26 Contractor: A company in charge to execute this cleanup action plan in compliance with regulatory applicable requirements.

1.5.27 Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1.

1.5.28 Fixed Object: A unit of equipment or furniture in the cleanup work area which cannot be removed from the cleanup work area.

1.5.29 GFCI (Ground Fault Circuit Interrupter): A type of ground fault protection in areas where personnel are at high risk of receiving electrical shocks (for example, in damp locations); makes use of a device designed to trip at a ground current in the milliampere range, i.e., very much below currents that are normally harmful.

1.5.30 HASP (Health and Safety Plan): A site-specific document which provides health and safety provisions for use during the Minillas Government Building (North Tower) Asbestos Cleanup Project. See Appendix VI.

1.5.31 HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of all mono-dispersed particles 0.3 micrometer in diameter or larger.

1.5.32 HEPA-Filtered Vacuum Cleaner: HEPA-filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers.

1.5.33 Holding Area: A chamber between the washroom and uncontaminated area in the equipment decontamination enclosure system.

1.5.34 Impermeable Waste-Disposal Containers: Suitable to receive and retain any asbestos-containing or contaminated material until disposal at an approved site. The containers shall be labeled in accordance with OSHA Regulation 29 CFR 1910.1001 and 29 CFR 1926.1101. Containers must be both water-tight and air-tight.

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1.5.35 Negative Exposure Assessment: A demonstration by the contractor, which complies with the criteria in OSHA 29 CFR 1926.1101(f)(2)(iii), that employee exposures during an operation are expected to be consistently below the PELs. Such assessment is to be used to justify level of respiratory protection to be used on the job.

1.5.36 NESHAP: National Emissions Standard for Hazardous Air Pollutants.

1.5.37 N.E.C.: National Electrical Code.

1.5.38 NIOSH: National Institute for Occupational Safety and Health.

1.5.39 OSHA: Occupational Safety and Health Administration.

1.5.40 PACM: Presumed Asbestos-Containing Material, meaning thermal system insulation and surfacing material found in buildings constructed no later than 1980.

1.5.41 PEL: Permissible Exposure Limit.

1.5.42 Penetrating Encapsulant: Treatment of asbestos-containing materials (ACM) with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers. A penetrating encapsulant penetrates the material and binds its components together.

1.5.43 Personal Monitoring: Sampling of asbestos fiber concentrations within the breathing zone of an employee. Breathing zone is defined as a radius of 6 inches to 9 inches around the employee's head.

1.5.44 Personal Protective Equipment: Equipment which may consist of coveralls, shoes, gloves, helmet, goggles, respirator used for protection against asbestos exposure.

1.5.45 Plastic Sheetting: Fire retardant Polyethylene sheet material of specified thickness used for protection of required components, and critical barriers in the cleanup work area.

1.5.46 Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

1.5.47 Project Coordinator: External technical consultant acting as the Project Coordinator in charge of the implementation of this cleanup action work plan, on behalf of PRBA, Aireko and Enviroresources, Inc. This consultant will supervise work performed by the Contractor on a day to day basis and will execute clearance sampling in order to certify cleaned areas.

1.5.48 Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres and approved by NIOSH or MSHA for a specific category of use.

1.5.49 Surfactant: A chemical wetting agent added to water to decrease surface tension and improve material penetration.

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1.5.50 Tape: Glass fiber or other tape capable of sealing joints of adjacent sheets of plastic (6-mils polyethylene) and for attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials under both dry and wet conditions, including use of amended water. Minimum tape width shall be 2 inches.

1.5.51 Warning Labels and Signs: As required by OSHA regulations 29 CFR 1910.1001 and 1926.58.

1.5.52 Waste Water Filters: Discharged liquids shall pass through a primary filter and the output shall be particles 20 microns or smaller. The secondary filter shall have output particles 5 microns or smaller.

1.5.53 Water Extraction Cleaning: Method which uses equipment that sprays water (not steam), sometimes with added cleaning chemicals, on the carpet while simultaneously vacuuming the sprayed water along with any dislodged and dissolved dirt.

1.5.54 Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water.

1.6 Regulations and References

1.6.1 Regulations: Contractor shall comply with the most current edition of all federal, state, county, and city codes and ordinances as applicable. Make available for review at the site one copy of all applicable federal, state, county and city regulations governing the cleanup work, including but not limited to:

1.6.1.1 Occupational Safety and Health Administration (OSHA), U.S. Department of Labor

- (a) 29 CFR 1910 (General Industry) and 29 CFR 1926 (Construction) Occupational Safety and Health Standards
- (b) 29 CFR 1910.1001 and 29 CFR 1926.1101 Asbestos
- (c) 29 CFR 1910.134 Respiratory Protection
- (d) 29 CFR 1910.1200 Hazard Communication

1.6.1.2 U. S. Department of Transportation

- (a) 49 CFR 171 Subchapter C, Hazardous Materials Regulations
- (b) 49 CFR 172 Subchapter C, Shipping Container Specifications

1.6.1.3 U.S. Environmental Protection Agency

- (a) 40 CFR 763, Toxic Substances Control Act; particularly Subpart E, Asbestos Containing Materials in Schools
- (b) 40 CFR 61, Sub-parts A and M, National Emission Standard for Hazardous Air Pollutants (NESHAPS)

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(c) 40 CFR 300, Emergency Response Actions under the National Contingency Plan, CERCLA

1.6.1.4 American National Standards Institute (ANSI), 1430 Broadway, New York, New York 10018. Telephone (212)354-3300

(a) ANSI Publication Z88.2 Practices for Respiratory Protection

1.6.1.5 American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103. Telephone (215) 299-5400

(a) ASTM Standard P-189 Specification for Encapsulants for Friable Asbestos Containing Building Materials Proposal

1.7 General Requirements and Health and Safety Plan (HASP)

1.7.1 Schedule: The proposed activities in this project and preliminary schedule are summarized in the Appendix IV.

1.7.2 Permits and Licenses: The Contractor shall maintain current any required licenses and obtain any applicable permits as required by federal and applicable state or local jurisdictions for the transporting, disposal or other regulated activity relative to this cleanup work. Contractor shall submit copies of such licenses and permits to the to the Project Coordinator.

1.7.3 Sequence of Work: Refer to Appendix II and III for the narrative description of the proposed sequencing of asbestos work and breakdown of cleanup work areas requiring separate or individual decontamination enclosures and how re-useable equipment will be cleaned for re-use before relocation or removal from the site. Sections 2.7 and 2.8 explains how enclosure systems will be erected and Section 2.19 how will be dismantled. Section 2.20 include how waste disposal containers will be cleaned and removed from the cleanup work area.

General Summarized Sequence (Prior to Clean up Activities):

- Submittal of Work Plan for EPA Approval
- EPA's Approval of Work Plan
- Procurement of Permits
- Execution of Contracts with Contractors
- Mobilization of Contractors
- Site Control and Shut down the A/C system (as applicable)
- Installation of Final Decon Unit in Level G, as applicable critical barrier and final equipment decon/waste-load out unit in this level
- Order to Proceed

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Sequence of Clean up Activities per Work Areas:

- Re-confirm that the elevators opening doors, at both sides (north and south) have been and continue be sealed at each floor of the building (except the two south car doors to be used for internal transport during clean up).
- Installation of Decontamination unit at entrance of the work area
- Placement, as applicable, of Critical Barriers
- Placement and testing of the required number of negative air machines/equipment
- Installation of Equipment Decontamination and Bag-out unit per work area, as applicable
- Re-confirmation Assessment of Ceiling Stucco condition (Levels 16, 12, 11, 10, 6, 5, 4, 2 and G with asbestos containing ceiling stucco present in lobby area)
- Cleanup Activities
- Final Clearance Sampling
- EPA's Review of Clearance & Results
- Isolation & Seal after clearance criteria acceptance

Sequence of Activities for Elevator Shafts and Cars (See Appendix III)

- Placement and testing of the required number of negative air machines/equipment
- Interior and exterior elevators Cabins (Cars) Cleanup, during which the elevators opening doors, at both sides (North and South) and at each level of the Building will continue to be sealed.
- Elevator Shafts, Elevator Cabins (cars)-externally and internally, Pit Cleanup, during which the elevators opening doors, at both sides (North and South) and at each level of the Building will continue to be sealed.
- Other related activities.

1.7.4 Cleanup Work Area Layout Sketch: Refer to Appendix V for the Layout sketch of decontamination enclosure systems and cleanup work areas indicating which areas will be sealed off (and by what means). Also they show locations of facilities and equipment such as decontamination units or equipment room, etc. The sketches show approximated locations of all filtration devices to be used, and calculations to determine the number of these devices needed to provide the minimum four air changes per hour in the cleanup work areas.

1.7.5 Isolation of Cleanup Work Areas: Sections 2.1 and 2.6 indicate the methods to isolate/restrict access to cleanup work areas. Include how access will be controlled, how building A/C ventilation systems will be isolated from cleanup area. Include how security and fire systems will be maintained within the containment. Include plans for electrical lock-out and dedicated electrical systems per level area (if necessary).

1.7.6 Transportation and Disposal: Section 2.20 indicate details of hauling equipment, materials and contaminated debris from inside the building. The Contractor should submit written identification of licensed hauler and landfill location.

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1.7.7 Personnel Organization and Responsibilities: The Contractor shall provide a list of all project personnel, both on-site and in the offices, and a statement of their responsibilities and authority for work on this project. The PRPBA (owner) will provide a list of all related personnel including emergency responder people.

1.7.8 Personal Protective Equipment: Sections 2.2 and 2.4 include details of personal protective equipment and use, storage and maintenance at job site.

1.7.9 Posted Notices and Warning Signs: Section 2.1.3 includes the OSHA and/or EPA regulation requirements for signs and posting during asbestos cleanup activities. Other applicable notices as indicated by the Department of Labor to be posted at the job site are responsibility of the Contractor.

1.7.10 Contractor Monitoring Services: Before start of asbestos work, the Contractor shall submit to the Project Coordinator the name of the contractor's industrial hygiene consultant and analytical laboratory for air monitoring.

1.7.11 Superintendent/Competent Person: Before start of asbestos work, the Contractor shall submit to the Project Coordinator the name of job site Superintendent/Competent Person who as a minimum must be certified as trained in accordance with 29 CFR 1926.1101 and 29 CFR Part 1910.120.

1.7.12 Workers' Specialized Training: Submit training course descriptions, locations, and dates. Furnish documentation that the workers are trained in accordance 29 CFR 1926.1101, 29 CFR 1910.120, and 29 CFR 1910.146, as applicable.

1.7.13 Project Schedule for Implementation of Work Plan: To expedite the implementation of the Work Plan asbestos abatement contractor(s); each level will be considered as independent regulated areas. Refer to Appendix IV for a preliminary timeline chart with the various phases of the implementation of the Work Plan, commencing once the Work Plan approval is issued by EPA but subject to the contractors availability. The work schedule includes time for Notification and Agency Approvals and Permits, Contracts issuance and signing of selected abatement contractors, Contractors Mobilization, Site Control and Installation of Decon units, etc. thru Cleaning and Decontamination Activities until Final Clearance Sampling, Isolation and Seal of Levels that meet clearance benchmarks or limits, EPA Review of Clearance Results until Authorization for Reentry of Building Occupants.

1.7.14 Respiratory Program: Section 2.4 indicates requirement for the Respiratory Protection during this cleanup asbestos work. Also, the Contractor shall submit an specific written respiratory program as defined in OSHA 1926.1101 and in these specifications. The Project approved HASP (Appendix VI) describes the type of NIOSH/Mine Safety and Health Administration ("MSHA") certified respiratory equipment set for each operation required by this project. All selection criteria must meet 29 CFR 1926.1101 (h) (2).

1.7.15 HASP Requirements: Each Contractor and Sub-contractor present in this asbestos cleanup project must comply with the general HASP developed by PRPBA. See Appendix VI for copy of the approved HASP.

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1.8 Project Preliminary Schedule:

The proposed Work Plan would be implemented within the preliminary timeline chart presented under Appendix IV. However, the given *start* and *finish* dates are only for guidance purposes, are estimated, subject to change and subject to the availability of the contractors. Contractor(s) will be retained to carry out the cleaning and decontamination activities presented on this Work Plan working simultaneously and independently at assigned floors and areas to expedite the completion of the proposed work. Following tasks are included in the cleanup project:

General Summarized Sequence (Prior to Clean up Activities)::

- Submittal of Work Plan for EPA Approval
- EPA's Approval of Work Plan
- Procurement of Permits
- Execution of Contracts with Contractors
- Mobilization of Contractors
- Site Control and Shut down the A/C system (as applicable)
- Installation of Final Decon Unit in Level G, as applicable critical barrier and final equipment decon/waste-load out unit in this level
- Order to Proceed

Sequence of Clean up Activities per Work Areas:

- Installation of Decontamination unit at entrance of the work area
- Placement, as applicable, of Critical Barriers
- Placement and testing of the required number of negative air machines/equipment
- Installation of Equipment Decontamination and Bag-out unit per work area, as applicable
- Re-confirmation Assessment of Ceiling Stucco condition (Levels 16, 12, 11, 10, 6, 5, 4, 2 and G with asbestos containing ceiling stucco present in lobby area)
- Cleanup Activities
- Final Clearance Sampling
- EPA's Review of Clearance & Results
- Isolation & Seal after clearance criteria acceptance

Sequence of Activities for Elevator Shafts and Cabins (cars) (See Appendix III)

- Placement and testing of the required number of negative air machines/equipment

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- Interior Elevators Cabins Cleanup, during which the elevators opening doors, at both sides (North and South) and at each level of the Building will continue to be sealed.
- Elevator Shafts, Elevator Cabins Exterior and Pit Cleanup, during which the elevators opening doors, at both sides (North and South) and at each level of the Building will continue to be sealed.
- Other related activities.

PART 2 – EXECUTION

2.1 Controlled Access to Site

2.1.1 Access to the cleanup work area shall be restricted to contractor's workers and authorized visitors as defined in these specifications.

2.1.2 Authorized visitors shall have access to the work site at all times following notification to Project Coordinator. Contractor shall supply protective clothing and equipment for visitors as necessary, except for respirators which are to be provided by the visitor in accordance with Section 2.4.8 of this plan.

2.1.3 Contractor shall prominently post signs at all potential entry points to the cleanup work area which clearly state: "Restricted Area Under Construction-Admittance by Special Permission Only - Protective Clothing Required Beyond This Point". Immediately inside entry point and outside critical barriers post a warning sign meeting specifications of OSHA 29 CFR 1910 and 1926. Suggested format is a sign of minimum size 20 inches by 14 inches displaying the following legend:

=====

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA

=====

2.1.4 All workers and authorized visitors shall enter the cleanup work area only through the general cleanup worker decontamination enclosure in Level G.

2.1.5 All workers and authorized visitors, before entering the cleanup work area, shall read and be familiar with all posted regulations, personal protection requirements, and emergency procedures and exit routes.

2.1.6 Contractor shall maintain a daily job site personnel log listing names and social security numbers (last four digits) of individuals who entered the cleanup work area, and the times of entering and leaving the area.

2.2 Worker and Visitor Protection

2.2.1 No eating, drinking, smoking, or chewing gum is permitted within the cleanup work area. The Project Coordinator shall designate a "break area" where these activities, except for smoking, are permitted. Smoking is prohibited in the Building.

2.2.2 Workers and Visitors shall be fully protected with respirators and protective clothing during any work which may disturb asbestos-containing materials and result in

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fiber release. Full protection is also required during pre-cleanup inspections of the containment, while work is not being conducted.

2.2.3 Protective Clothing and Equipment: Provide workers and visitors with sufficient sets of protective full body clothing, to include full body coveralls with hood, boots (for workers) and footwear coverings (for workers and visitors), and gloves. Provide eye protection and hard hats as required by applicable safety regulations. Contaminated non-disposal clothing and footwear shall be left in the equipment room until the end of the asbestos cleanup work, at which time such items shall be disposed of as asbestos waste, or shall be thoroughly cleaned of all asbestos or asbestos-containing material. Contractor shall have at least six sets of disposable protective full body clothing for the Project Coordinator and authorized visitors for each work day. Provide storage facilities for visitors and workers for removed street clothing in the clean room.

2.2.3.1 Boots: Provide workers non-skid type work boots with protective shields as required by OSHA. Paint uppers of boots with red waterproof enamel paint as a permanent marking that the boots have been exposed to cleanup work ACA. These boots are to be handled as asbestos-contaminated materials.

2.2.3.2 Hard Hats: Provide hard hats that meet American National Standard Institute ("ANSI") Z89.1 for use where work is overhead, scaffolding is being used, or as otherwise required by OSHA. Label hats with same warning labels as required for asbestos waste disposal bags.

2.2.3.3 Goggles: Provide goggles that meet ANSI Z87.1 as required by OSHA.

2.2.3.4 Gloves: Provide disposable work gloves for use in the cleanup work area.

2.2.3.5 Coveralls with Hood: Provide disposable coveralls with hoods for use in the cleanup work area.

2.2.3.6 Respirators: Provide workers with personally issued and marked respirator equipment approved by NIOSH/MSHA and, in accordance with these specifications, suitable for the asbestos exposure level in the cleanup work area. Where respirators with disposable filters are employed, provide sufficient filters for replacement as necessary by the cleanup worker, or as required by the applicable regulation. Authorized visitors must provide their own respirators, with fresh filters or cartridges as necessary, to enter the cleanup work area. These are minimum requirements. Section 2.4 of this document is to be consulted for more detail. **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS EXITED.**

2.3 Procedures for Entry and Exit of Work Areas

2.3.1. Each time a work area is entered by the Level G by any individual (*i.e.*, cleanup workers and authorized visitors), individuals shall remove all street clothes in the Clean Room of the General Decontamination Enclosure located at this Level G and put on new disposable coveralls with head cover and a clean respirator.

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2.3.2 With the respirator already adequately placed, individuals shall proceed through shower room to equipment room and put on work boots.

2.3.3 When leaving any cleanup work area (all levels and elevator room) following pre-decontamination procedures shall be followed by all individuals:

2.3.3.1 **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS EXITED.** Before leaving each regulated area, individuals shall remove all gross contamination and debris from their protective clothing with HEPA vacuuming.

2.3.3.2. With their respirator adequately placed, individuals shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers. **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS EXITED.**

2.3.3.3 Individuals shall shower prior to entering the clean room with their respirator still in place. **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS EXITED.**

2.3.3.4 After showering with their respirator still adequately placed, individuals shall enter the clean room before putting on new disposable coverall with head cover. **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS EXITED.**

2.3.3.5 Proceed to the ground level final decontamination unit at Level G.

2.3.4 Each building level or work area will have a preliminary decontamination unit located in each level's each lobby area where the above mentioned pre-decontamination shall take place. Each time the levels or work areas are exited individuals shall perform steps 2.3.3.1 to 2.3.3.5. In the Clean Room of the Decontamination Unit put on new disposable coverall, the respirator will not be removed in any time during this pre-decontamination phase. Proceed to the final decontamination enclosure located at Level G to complete the descontamination including cleaning and removal of the respirator.

2.4 Respiratory Protection

2.4.1 Contractor is hereby advised that asbestos has been determined by the U.S. Government to be a CANCER-CAUSING AGENT. Provide workers with respirators [which, as a minimum, meet the requirements of OSHA 29 CFR 1926.1101] and protective clothing during all phases of the cleanup work and until final tests are accepted by Project Coordinator.

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2.4.2 The Contractor shall select respirators from among those jointly approved as being acceptable for protection by the MSHA and the NIOSH under the provisions of 30 CFR Part 11.

2.4.3 The Contractor shall select and provide respirators, at no cost to their workers and shall ensure that the employee uses the respirator provided.

2.4.4 Instruct and train each worker involved in asbestos cleanup or maintenance and repair of asbestos-containing materials in proper respiratory use and require that each worker always wear in the cleanup work area a respirator, properly fitted on the face. The respirator shall be worn from the start of any operation which may cause airborne asbestos fibers until the cleanup work area is completely decontaminated.

2.4.5 Allow an individual to use only those respirators for which training and fit-testing has been provided. Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit check in accordance with the manufacturer's instructions or ANSI Z88.2.

2.4.6 The employer shall provide respirator protection in accordance with 29 CFR 1926.1101 (h) Table 1 - Respiratory Protection for Asbestos Fibers. This level of respiratory protection shall be maintained until the employer can produce a negative exposure assessment.

2.4.7 For the cleanup work, use respiratory protection appropriate for the fiber level encountered in the cleanup work area or as required for other toxic or oxygen-deficient situations encountered. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL) is the minimum level of protection allowed. (Table 1, Respiratory Protection for Asbestos Fibers, 29 CFR 1926.1101) Do not use single-use, disposable, or quarter-face respirators. As per PRPBA characterization air sampling results, a half-face air purifying respirator with P-100 cartridges is enough.

2.4.8 Authorized visitors are responsible for providing their own respirator and replacement filters and cartridges, and for having been previously and properly trained fit-tested, for the respirator used.

2.4.9 For use with air-purifying respirators, provide, at a minimum, HEPA type filters certified by NIOSH and MSHA for protection against asbestos fibers. In addition, a chemical cartridge may be added, if required for protection against chemicals used on this job.

2.4.10 For use with powered air purifying respirators, supply a sufficient quantity of HEPA filters approved for asbestos, so workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement.

2.5 Air Monitoring, Stop Action and Final clearance Levels

2.5.1 The Contractor shall conduct air monitoring required by OSHA for Contractor personnel and ambient air samples. The amount of personal and area samples should be representatives for the areas and/or levels under cleanup activities. The Contractor shall submit to the Project Coordinator an Air Monitoring Plan before the commencement of

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activities which the Project Coordinator shall share with the EPA oversight representatives prior to commencement of activities. OSHA excursion limit air sample PCM analysis should be same day analyzed and posted; air samples taken during the morning period shall be analyzed in the afternoon. Area and personal analyses report should be posted by 10:00 AM in the next day morning shift.

The Sampling Plan is the following:

2.5.2 Analytical Methods: The following methods will be used in analyzing filters used to collect air samples. Minimum sample volumes will be 3,600 liters for clearance samples.

2.5.2.1 Phase Contrast Microscopy (PCM) - will be performed using the OSHA Reference Method, Appendix A to 29 CFR 1926.1101, or NIOSH Method 7400. If NIOSH 7400 result is more than 0.002 f/cc NIOSH 7402 is applicable. Contractor's air sampling can be analyze with this method.

2.5.2.2 Transmission Electron Microscopy (TEM) - will be performed using the analysis method set forth in the NIOSH Method 7402, whichever is deemed more appropriate pursuant to the above mentioned criteria (2.5.2.1) in each case during re-occupancy air sampling.

2.5.3 Before Start of Work: The PRPBA already secured cleanup work area air samples which establish a base line of <0.002 fiber/cc level in each homogeneous cleanup work area. All air sample results determine that negative air-purifying half-face mask respirators with NIOSH approved P-100 Particulate HEPA filters are sufficient for the proposed cleanup activities.

2.5.4 Daily: From start of cleanup work and until its completion, the Contractor shall take confirmatory samples on a daily basis inside and outside each cleanup work area. The Contractor will conduct OSHA and ambient air monitoring every day during all project phases. PRPBA may, at its option, take additional confirmatory samples on a daily basis inside and outside each cleanup work area

2.5.5 Clearance Air Samples: will be collected by the Project Coordinator following aggressive sampling technics.

2.5.6 Stop Action: If any air sample taken outside of the cleanup work area exceeds 0.01 f/cc, the Project Coordinator, in consultation with the EPA-OSC, shall immediately and automatically stop all work except corrective action. The EPA On-Scene Coordinator, the Project Coordinator, and the Cleanup Contractor will identify the source of the high reading.

2.5.7 Cleanup Work Area Final Clearance Levels: As agreed with the EPA, PRPBA will follow the same Characterization sampling approach (with random areas as the Pink Book approved strategy) but in different locations inside subject levels including:

Collect 9 air samples per building level using NIOSH 7400/7402 method. Once each level is cleaned the supply air system must be operated independently (as applied) prior to the start of clearance air testing to ensure that the clearance air testing includes sampling of air from the supply ducts.

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Collect 9 samples per building level of fabric items or cloth chairs and office cubicle partitions plus floor carpets, using ASTM D5755-03;

Collect 9 samples of settled dust on backside of ceiling panels via method appropriate to the surface;

Collect 9 samples per building level of horizontal smooth non-cloth items and surfaces (desks, floor tiles, etc.) with the Wipe Method ASTM D6480 for asbestos-containing dust;

Collect at least 1 sample per each A/C Return located in the building levels (Levels P to 16 have 4 returns each one while Level 17th has two) and 1 sample per level A/C Supply (thru duct service door) using the wipe or microvac method (as appropriate) for asbestos-containing dust. Once each supply and return side is cleaned the supply air system must be operated independently (as applied) prior to the start of clearance A/C testing to ensure that the clearance testing includes sampling of air from the supply ducts.

Collect 4 air samples in the Elevator Mechanical Room (located above Floor 17) using NIOSH 7400/7402 method; and 5 wipe samples of horizontal smooth non-cloth items and surfaces (equipment bases, floor, etc.) with the Wipe Method ASTM D6480 for asbestos-containing dust. The amount of samples is based in the EPA Dust sampling protocol used at WTC which recommends 3 samples for areas below 1,000 ft². The elevator room does not have major finishes (*i.e.*, no ceiling tiles, no floor tiles, no furniture, etc.) and surfaces are nonporous. The room is inaccessible to the general building occupants while infrequently accessed by the maintenance building workers. This sampling approach is the same used during the EPA-approved Characterization (background) Plan.

Collect 1 air sample and 3 wipe samples in each of the 6 elevator cabins (cars). The two south cars need to be cleaned and cleared first as they will be used for internal transport during clean up and then must be re-cleaned and re-cleared at the end of the whole clean up process.

Collect 4 air samples in Elevator shafts (2 at North and 2 at South) using NIOSH 7400/7402 method; and 5 wipe samples of horizontal smooth non-cloth items surfaces (equipment bases, floor, etc.; 5 samples at North shaft and 5 at South) with the Wipe Method ASTM D6480 for asbestos-containing dust. Surfaces are homogeneous in both shafts. Air samples will be taken at the pit level. The elevator mechanical room air sample results will be also considered as reference data for the shafts.

Stairways (*i.e.*, Northwest and Southeast) are independent functional units. They are composed of two levels of staircases per floor (piso). At least 1 wipe sample

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(using Wipe Method ASTM D6480 for asbestos-containing dust) and 1 air sample (using NIOSH 7400/7402 method) will be collected in each level for a total of 9 wipe samples and 9 air samples per stairway (*i.e.*, per functional area). Based on the space and characteristics of each functional area, and the consensus of the technical team's professional judgement and experience, the number and location of samples is adequate.

The standards for cleanup work area final clearance and for removing the containment and re-occupancy as per EPA requirement are:

Air Clearance

Air samples will be collected and analyzed by NIOSH 7400 method, if the result obtained is less than 0.002 f/cc then the air sampling clearance criteria will be met, if the PCM result is above 0.002 f/cc the sample media shall be analyzed by NIOSH 7402 TEM (PCMe) to determine if it meets the air clearance criteria.

- Air Sampling ≤ 0.002 f/cc by PCM
- Air Sampling ≤ 0.002 f/cc by TEM (PCMe)

The PCM method (NIOSH 7400) counts any type of fibers in the sample that comply with pre-establish characteristics and are considered as suspect asbestos fibers in air. The continued utilization of TEM or NIOSH 7402 is for the quantitation and qualification of those suspect fibers in air thus eliminating non-asbestos fibers for critical exposure data.

Dust Clearance

- Settled Dust: $\leq 5,000$ s/cm² by TEM (ASTM D-6480 wipe method for hard surfaces)
- Settled Dust: $\leq 5,000$ s/cm² by TEM (ASTM D-5755 microvac method for porous surfaces)

If these clearance criteria is not met, the complete building Level or work area shall be re-cleaned by the Contractor and re-sampled following the above mentioned final sampling approach but in different locations and restricted to the subject random area of the level where any sample failed. Random areas are delimited as agreed during the development of the sampling strategy using the Pink Book. This sequence will be repeated as necessary until the clearance criteria's are met.

2.6 Initial Isolation of Cleanup Work Area

2.6.1 In each regulated level or work area, the Contractor shall separate the cleanup work area from other portions of the building, and the outside, by sealing openings (*i.e.*, windows, doorways, elevator openings, corridor entrances, drains, ducts, grill, diffusers, skylights, etc.) with barriers of 6-mils polyethylene sheeting and tape, or by sealing cracks leading out of the cleanup work area. Contractor shall caulk the joints and seal holes in that portion of the walls, ceiling, and floor inside the cleanup work area that could allow airborne asbestos fibers to be carried into adjoining spaces, or the exterior. Doorways and corridors which will not be used for passage and/or emergency exits during work must be sealed with fire retardant plastic sheeting with tape.

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In order to further ensure that containment is maintained especially during operation of elevators, in the event that NAMs are not adequate on start up, a HEPA filter will be placed in the exhaust (louver) located in the elevator machine room (*i.e.*, above Level 17) prior to the commencement of any cleanup activities. The HEPA filter will be removed from this exhaust after all cleanup activities are completed and the work areas are cleared.

2.6.2 Currently air conditioning systems are in operation in the Building in order to, the extent possible, maintain ordinary operational conditions of such systems. All A/C components that are in, supply or pass through the cleanup work area shall be shut down, as applicable and cleaned as detailed in Appendix II. During asbestos cleanup activity process, exhaust fans, and A/C vents and intakes will be key locked to not operate in the cleanup work area. Note that Levels 9-17 and G have a separate A/C unit from Levels P-8. The units will be shutdown accordingly prior to commencement of work at the levels. Note, however, that the Liebert A/C units located in Level 2 which are inside and dedicated for the data room and are independent cannot be shutdown in order to protect the servers. The results of the characterization samples collected for this room were non detected. Based on the independence of the A/C units and the full segregation of the data room area, this area should not have received impact. Nevertheless, as an additional measure this area will be cleaned with HEPA vacuum and wet methods (rags and mops) and tested for clearance. Cleanup will be conducted with the A/C on. For the location of the Data Room in Level 2 see the corresponding Layout included in Appendix V.

During the cleanup works two elevators will be in use as entrance/egress; one for the decontamination unit and the other for the equipment/waste bag-out unit. The other four elevators will be out of order and sealed with double-layers of 6-mils polyethylene plastic on each level. Contractor shall coordinate with the Project Coordinator, and Building Representative which areas are to be shutdown and for what duration. Seal all intake and exhaust vents, and seams in system components, with a double layer of 6-mils polyethylene sheeting. Additionally, the Building owner may decide to discard (as asbestos waste) ceiling tiles, ducts and other finished surfaces or elements which will be handled and disposed of as asbestos waste.

The sequence for the cleanup of the a/c system supply and return of each level and/or work area, as applicable is the following:

The four air handling units were cleaned by and the primary and secondary filters were replaced. The exhaust from the currently operating A/C system are being filtered with HEPA filters. Weston was overseeing the cleanup of the units and the installation of the air filters.

- The area must be secured to prevent entry by unauthorized personnel as Section 2.1.
- The air conditioning system supply air and return ducts will be cleaned in accordance with the National Air Duct Cleaning Association (NADCA) Assessment, Cleaning, and Restoration (ACR) 2006 Standard, using the source removal method and maintaining all areas being cleaned under negative pressure, such that containment of debris and the protection of the indoor environment are assured.

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- The Building owner may decide to discard (as asbestos waste) ceiling tiles, ducts and other finished surfaces or elements which will be handled and disposed of as asbestos waste.
- The cleaning process will follow the A/C system air flow pattern. The supply side on floors 17 to 9 will be cleaned in that same order (from top to bottom) and floors P to 8 will be cleaned in that same order from (bottom to top) in this manner we will always have supply air moving from uncontaminated areas to contaminated areas. Also, the individual A/C units (consoles) from Ground Level and Elevator Machine Room will be cleaned by HEPA vacuums and wet (rags) methods.
- The return vertical shafts will be cleaned as follows:
 - Floors 17 to 9 and Floors P to 8, each complete shaft will receive a cleaning service at the beginning of the A/C cleaning process, once each floor is cleaned the air transfer grilles for that floor will be blocked through the installation of critical barriers, with this procedure when the A/C is returned to service for the clearance air testing we can ensure the clearance air testing includes sampling of air from the supply ducts returned to service.
 - Detailed Procedure for Cleanup:
 - A vacuum collector device will be connected to the downstream end of the section being cleaned through a predetermined opening (normally using pre-existing access door or access points). It is required the equipment utilize HEPA filtration with 99.97% collection efficiency at 0.3 micron particle size.
 - A continuous pressure differential will be maintained between the portion of the A/C ductwork system being cleaned and surrounding indoor occupant spaces.
 - The dislodging contaminants from duct system components will be accomplished through mechanical agitation techniques to dislodge debris adhered to interior A/C system surfaces, such that debris may be safely conveyed to vacuum collection devices. Agitation devices will include cable driven brush systems, pneumatic and electric driven brushes, and hand tools such as contact vacuum brushes.
- All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
- Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover areas will be disposed of as contaminated waste.
- All non-disposable equipment is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure located at ground level.
- Workers will then follow personal decontamination procedures as Section 2.3.

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- Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.

The four air handling units (two in Level G and two in Level 17) will be cleaned by the flow of air from uncontaminated to contaminated areas and the primary filters will be replaced again with those specified by the manufacturer in the order established in the sequences included in Appendix II. A tunnel communicating the air handling machine room (east and west) with the equipment and waste bag-out unit and the corresponding south elevator cars will be installed during the set up at Level 17 in order to subsequently reaccess the area without affecting the isolation and clearance of the area to implement the final cleanup of the two handling units located in the machine room located at Level 17. Please see the sequence provided for that level in Appendix II.

2.6.3 All on-site workers will be trained in and reminded of the provisions of the Health and Safety Plan (HASP) included in Appendix VI, including site communication systems, and site evacuation routes during the daily pre-work briefing and safety meetings. The Contractor's safety officers will review the emergency response provisions on a regular basis and will be revised, if necessary, to make certain that they are adequate and consistent with prevailing work areas and site conditions. In the event of a fire, explosion or any other emergency on the Building, Fire Department, Police Department and State and Municipal Emergency responders will be immediately notified and summoned according to the existing General Minillas Emergency Plan. A pre-commencement of cleanup activities safety meeting will be held with the Minillas Emergency response personnel including representatives of (a) the Fire Department, (b) the Police Department (c) the State Agency for Emergency Management (d) Municipal Emergency Management and (d) the PREQB to review the HASP and discuss the procedures for response actions in case of emergency. The foregoing representatives will receive a copy of this Work Plan, including the HASP. During the meeting, distinct attention will be offered to the combustible materials/substance (fire hazards) in the cleanup project (both existing and upcoming by the contractors); Material Safety Data Sheets (MSDS) of all relevant chemical substances must be in place and made part of the HASP prior to the commencement of cleanup activities and for the foregoing safety meeting. A revised version of the HASP, including the MSDS will be provided to EPA and the foregoing emergency respondents.

2.6.4 Arrange for the cleanup work area to be locked during non-work hours. Although, the building will be unoccupied during non-work hours the Emergency response personnel will be aware of this arrangements.

2.7 Preparation of Cleanup Work Area and Temporary Enclosures

2.7.1 No exhibit collection object shall be handled by the Contractor without the approval of the Project Coordinator. Methods for surface decontamination (as established

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in this work plan) and/or disposal of unsalvageable objects shall be determined with the input from the Project Coordinator, the object's owner and the Contractor. The Building owner may decide to discard (as asbestos waste) furniture, ceiling tiles, ducts and other finished surfaces or elements which will be handled and disposed of as asbestos waste.

2.7.2 Clean all doorframe elevator surfaces in work areas with a HEPA-filtered vacuum cleaner and by wet methods. Cover doors of four of the six existing elevator with two layers of 6-mils polyethylene sheeting and tape. One elevator will be dedicated to the entrance/egress personnel preliminary decontamination unit and the other for the equipment room-waste bag-out. Arrange entry/egress to cleanup work area so that the two selected elevators door are in a positively pressurized space outside the clean room of the decon unit or equipment room of the waste bagout unit.

2.7.3 Make-up air will be induced from the clean area thru a vent or vent(s) installed in an opened or removed window(s). Contractor will also install an exhaust vent or vent(s) using an opened or removed window(s).

2.7.4 Critical barriers, including ventilation openings (supply and exhaust), lighting fixtures, doorways, windows, and other openings into the cleanup work area shall be individually sealed with 6-mils plastic sheeting and tape. Applicable elevator doors, and other penetration in the floor, walls, or ceiling shall be sealed in the cleanup work area. If a temporary polyethylene/stud wall must be erected, that wall shall be treated as a critical barrier. The double layer polyethylene containment enclosure shall then be erected on that wall. Critical barriers shall be sealed prior to installation of primary barriers.

2.7.5 When apply, unsealed lighting fixtures, control boxes, and busslines are to be cleaned by asbestos workers specially certified to work on high voltage lines.

2.7.6 Floors and carpets (where applicable) will not be covered. These areas are considered as part of the cleanup efforts.

2.7.7 PRPBA Characterization (background) sampling results do not show evidence that carpets contains settled dust above reference benchmark. EPA result shows that one sample collected in the carpeted floor of Level P and one sample in the carpeted floor of Level 14 are <3 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm². Sampling was done following ASTM D-5755 microvac method for porous surfaces. HEPA vacuum techniques will be implemented in all carpeted floors. In addition in Levels P and 14 carpets will be cleaned with a water extraction cleaner.

2.7.8 Cover plastic sheeting in areas where scaffolding is to be used with a single layer of ½ inch fire retardant plywood. Wrap edges and corners of each sheet with tape.

2.7.9 When installing the critical barriers as mentioned in Section 2.7.3, automatic sprinkler heads and fire detectors shall not be covered or altered to prevent or delay operation. Smoke detectors should be protected (but not completely masked) to avoid nuisance alarms during cleanup operations. The covers on the smoke detectors shall be removed immediately after such operations and at the end of the cleanup workday. Notification and coordination will be held with Minillas Emergency Response personnel during the pre commencement of cleanup activities safety meeting as described in Section 2.6.4.

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2.7.10 Provide emergency exiting labels and signs to stairways (northwest and southwest) as emergency standard procedure for evacuation.

2.7.11 Provide GFCI protection for all electrical equipment.

2.8 Construction of Preliminary and Final Decontamination Units, Equipment Decontamination and Waste Load-Out Enclosures

2.8.1 Preliminary Worker Decontamination units, Equipment decontamination and Waste Load-Out Enclosures shall be provided at each cleanup work area. Two elevators from the South shaft will be in use during clean up works; one for the entrance/egress personnel decontamination unit and other for the equipment room-waste bag-out. Prior to the construction of the unit, the inside of both elevators must be cleaned with HEPA vacuums and wet methods and then covered with 2 layers of 6-mils polyethylene plastic

2.8.2 A final worker decontamination unit, equipment decontamination and waste load-out enclosure shall be provided at ground level (Level G). The construction of these units will follow the requirements included in Section 2.8.3. These units will include an area/route for the carrying the waste to the dumpster designated for such purposes.

2.8.3 The Contractor shall construct a worker decontamination enclosure consisting of at least a clean room, a shower room, and an equipment room, each separated by 3 feet air locks. Narrower air locks may be built if approved by the Project Coordinator.

2.8.3.1 All rooms shall be constructed of or fully lined with 6-mils thick polyethylene sheeting and suitable framing to make them as air-tight as possible. Where joining separate sheets of polyethylene is necessary, the two sheets of polyethylene shall be over-lapped at least 6 inches and adhered with an unbroken line of tape in such a manner to prohibit air movement. Stagger joints. Tape shall then be used to further seal the joint on the other side of the containment barrier so that both loose edges of the overlap are completely sealed.

2.8.3.2 Doorways will consist of three sheets of 6-mils polyethylene from ceiling to floor. The width of these polyethylene sheets shall be sufficient to prevent air movement through the doorways when closed. These doorways shall be the only source of make-up air for the HEPA negative air filtration unit under normal circumstances, unless other sources are specifically approved by this action work plan.

2.8.3.3 Provide ground fault circuit interrupter ("GFCI") protection for all electrical equipment.

2.8.3.4 Provide temporary lighting inside the decontamination enclosure facility (if needed).

2.8.4 The Clean Room shall have a curtained doorway leading to the outside of the cleanup work area, and an airlock leading to the Shower Room. The clean room shall be of sufficient size to accommodate at least one worker, and a supply of clean disposable coveralls and storage facilities for street clothing (Level G only), and uncontaminated equipment.

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2.8.5 The Shower Room shall have two airlocks, one adjacent to the clean room and one adjacent to the equipment room. The Shower room shall provide hot and cold running water and soap and towels. It should have adequate space for a shower stall. Waste water from the shower shall be discharged through a water filtration unit efficient to 5 microns, then to a sanitary sewer. Shower room shall have opaque walls.

2.8.5.1 Shower Stall: Provide leak tight shower enclosure unit with integrated drain pan fabricated from fiberglass or other durable waterproof material. Equip with hose bibs for water. Provide splash proof entrances. Provide back flow prevention device and vacuum breaker, where required. Connect drain to a reservoir, pump water from reservoir through filters to a drain. Mount filters inside shower stall in manner that allows for access for filters to be changed from inside the shower. Change filters daily or more often if necessary. Locate filters inside shower unit so that water lost during filter changes is caught by shower pan. Provide temporary extensions of existing, if available, and authorized for Contractor use by Project Coordinator water and drainage, as necessary for a complete and operable shower.

2.8.5.2 Filtered Waste Water Drainage: Provide cascaded disposable HEPA filter units on drain lines from showers or any other fluid source carrying asbestos. Connect so that discharged water passes primary filter and output of primary (particles 20 microns and smaller) filter passes through secondary (particles 5 microns and smaller) filter.

2.8.5.3 Sump Pump: Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump two times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of three inches remains between top of liquid and top of sump pan.

2.8.6 The Equipment Decontamination-and Waste Load-Out Enclosure shall have three airlocks, one adjacent to the cleanup work area, one to the equipment pre-wash station and the other to the waste load-out decontamination process. The room shall be of sufficient size so as to accommodate at least one worker, to temporarily house any equipment which the contractor wishes to store when not in use and to place outside cleaned waste containers. The area shall have a double-6mils polyethylene bag container for collection of disposable rags or other material generated during the equipment decontamination. Before removing from the regulated area, workers shall remove all gross contamination and debris from the non-disposable equipment with HEPA vacuuming and then pre-wash with wet techniques (rags/amended water) inside the Equipment and Waste Load-out unit.

2.8.7 In order to enter the work area through Level G, the worker will follow the procedure as establish in Section 2.3.1.

2.8.8 Upon leaving the work area, **RESPIRATORS SHOULD NEVER BE REMOVED UNTIL THE SHOWER DECON IN LEVEL G (GROUND) IS**

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EXITED. The worker will follow the preliminary and final procedures as establish in Section 2.3.3.

2.8.9 Waste Load-Out Enclosure: Asbestos-contaminated waste that has been containerized shall be transported out of the cleanup work area through the waste load-out enclosure. Waste load-out procedures shall be performed by two teams. The team inside the cleanup work area shall clean the outside of properly labeled asbestos waste containers (see Section 2.20.6.3) using HEPA vacuums and/or wet wiping, and place them into the waste load-out enclosure. A second cleaning of the containers will take place before proceeding to the double bagging of the waste before exiting the preliminary decontamination area located at the corresponding work area. No personnel from the inside team shall exit any further from the cleanup work area. The team inside the waste load-out area (wearing protective clothing and respirators) shall retrieve the waste containers from the load-out enclosure, double-bag the waste and pass them to the selected elevator already covered with plastic.

2.9 Negative air circulation inside containment

Levels 17 to G will be cleanup by sections. It has been estimated that to achieve four air changes per hour at least six HEPA filters NAM's, plus one spare NAM, will be necessary to maintain negative pressure per each Level from G to 17. Also, 2 additional HEPA filters NAM's will be necessary per each Level to be connected to the preliminary decontamination unit and to the waste load-out unit as described in Section 2.10.1 and Appendix V-Layout sketches. In the Elevator Mechanical Room at least one HEPA filtered NAM and one spare will be needed. To achieve four air changes per hour at least 2 HEPA filtered NAM's will be necessary during the cleanup process per Elevator shaft; but 3 HEPA filtered NAM's will be used for each shaft.

2.9.1 Formula for Quantity of Air-Filtration Units: The number of air filtration units needed to achieve the required air circulation rate shall be determined by the following formula:

CALCULATE	Volume of cleanup work area (CF)
MULTIPLY BY	Number of air changes per hour, four to ten.
MULTIPLY BY	1/60 (hr/minutes)
DIVIDE BY	Capacity of air filtration unit fully loaded with all filters (pressure differential activates warning light for loaded filters)
MULTIPLY BY	80% expected efficiency
ADD	one additional unit as backup for failure or shutdown
EQUALS	minimum number of units required
=====	

2.9.2 Supplemental Make-up Air Inlets: As necessary to achieve air flow throughout the cleanup work area, locate substitute make-up air inlets as far away as possible from

the air filtration units, preferably near the ceiling and away from barriers that separate the containment barriers and enclosures from surrounding areas. Cover inlet with plastic sheeting flaps to reseal automatically if the pressure differential system should shut down for any reason. Provide rigid framing around the opening. Spray the flap and around opening with spray adhesive so that if flap closes, the meeting surfaces are both covered with adhesive. Use adhesive that forms contact bond when dry. If used during clearance monitoring, tape or seal HEPA filters over inlets. Make-up air will be induced from the clean area by opening or removing windows in each level and provided with primary filters. Make-up air will be induced from the South face of the building and all exhaust air will directed thru the North face of the building. Make-up inlet and exhaust outlet air location (north vs south) may be different in each level/area according to the existing conditions.

2.9.3 Penetrations through masonry and/or fire walls, required for improving air circulation, shall be protected with a fire damper.

2.9.4 Accomplish the pressure differential by exhausting a sufficient volume of HEPA filtered air from the cleanup work area. Efforts to achieve pressure isolation shall first address:

- 2.9.4.1 Establishing required air circulation
- 2.9.4.2 Verifying seals are complete as practical
- 2.9.4.3 Establishing increased pressure in adjacent areas, if available
- 2.9.4.4 Exhausting sufficient volume of HEPA filtered air with additional air filtration units.
- 2.9.4.5 Decreasing the size of cleanup work area to affect a smaller volume required for filtration

2.10 Placement of Air Filtration System Units

2.10.1 Equipment shall be located so as to optimize air movement throughout the cleanup work area by positioning air filtration units as far away as practical from the access opening or other supplemental make-up air inlets.

In all levels including the Elevator machine room, at least one HEPA filtered NAM will be connected to the Worker Decontamination unit and to the Equipment and Waste Load-Out Decontamination Enclosure so that the selected entry/egress elevator door is in positively pressurized space. An spare unit will be available as establish in Section 2.10.2.

2.10.2 The substitute air-filtration unit shall be located on site and available and ready to run at any time.

2.10.3 Air movement shall be established in such a way that airborne fibers will be carried away from workers' breathing zones.

2.10.4 Dead air pockets shall be minimized by proper ducting of make-up air if necessary, and by optimum location of the negative air filtration units.

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2.10.5 The Contractor shall use smoke tubes to determine if dead air spots are present, and shall take corrective action as outlined above when they are found. Report such actions to the Project Coordinator immediately. Also, the Project Coordinator may perform regular smoke tests within the containment to ensure negative pressure is maintained at all times.

2.10.6 The air filtration units shall be placed so that access for changing the filters is inside the containment barrier. The unit is to run continuously during filter changing. A supply of filters shall be kept on site outside of containment area. If a unit must be turned off for servicing, an auxiliary unit must be in place and turned on.

2.10.7 Vent to the outside of the building. Terminal exhaust ductwork must be placed as far away as possible from occupied areas (e.g., security guards). Special provisions for air monitoring shall be implemented by the Contractor's air monitoring firm.

2.10.8 Mount units to exhaust directly or through disposable ductwork. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit.

2.10.9 Contractor shall test all HEPA filtered NAMs units in-place before cleanup activity begins.

2.11 Pressure Differential Isolation

2.11.1 The cleanup work area, the decontamination enclosure system and the equipment/waste bag-out unit shall be maintained at a negative pressure relative to adjacent areas.

2.11.2 Minimum of four air changes per hour. Continuous HEPA filtered exhaust unit is to be in operation until job is completed.

2.11.3 Make-up air shall be obtained direct from the outside thru opened or removed windows provided with primary filters.

2.11.5 Supply sufficient pre-filters to allow frequent changes.

2.11.6 During and after the pre-cleanup test, run the air filtration units, until cleanup work area is complete.

2.11.7 The HEPA-filtered units shall be left on continuously during cleanup activities per work area.

2.12 Pre Cleanup Inspection, Testing, and Approval

2.12.1 Pre-cleanup Testing Requirements: Contractor must demonstrate that cleanup work area can hold negative pressure with smoke testing. As a minimum, the Contractor shall make all arrangements and demonstrate satisfactory equipment operation and set-up for compliance with these specifications.

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- 2.12.1.1 Show proper condition of equipment seals including results of in-place HEPA-filter testing.
- 2.12.1.2 Show proper operation and calibration of instrumentation.
- 2.12.1.3 Show identification of equipment unit and fan capacity.
- 2.12.1.4 Use smoke tubes to demonstrate adequate air circulation, elimination of dead air pockets, positive air motion through the decontamination enclosure system into the cleanup work area.
- 2.12.1.5 Show the installation method for pre-filters and the HEPA primary filter in the air filtration unit. Show supply of filters available on site.
- 2.12.1.6 Demonstrate procedures for how workers will enter and exit the decontamination enclosure system described in Section 2.3.
- 2.12.1.7 Demonstrate procedures for handling emergencies and for the prevention of contamination of surrounding areas.
- 2.12.1.8 The Project Coordinator and the Building Representative will identify disabled building ventilation systems and the positive means that will prevent accidental or premature restarting. Confirms means to have unit restarted at the conclusion of the cleanup work. The Project Coordinator and the Building Representative will verify that all equipment affected is secured at the main breaker.
- 2.12.1.9 Demonstrate how contaminated shower water is filtered and drained as required in this work plan.
- 2.12.1.10 Demonstrate that each air filtration unit is serviced by a dedicated minimum 115V-20A circuit with GFCI protection.
- 2.12.1.11 Demonstrate how asbestos waste will be removed and bagged for transport. Identify procedures for hauling through the building to the loading dock as required in this work plan.

2.13 Maintenance of Containment Barrier and Enclosures

2.13.1 By means of visual inspection ensure that the containment barrier, decontamination enclosure rooms, waste bag-out unit and other sealed doors, vents, etc., and plastic linings are effectively sealed and taped for the duration of the cleanup work.

2.13.2 Repair damaged barriers and remedy defects immediately upon discovery. Visually inspect enclosure at the beginning of each work period.

2.13.3 Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes exposed to and contaminated with asbestos shall be decontaminated or disposed of in accordance with the applicable regulations and special requirements.

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2.13.4 Clean debris and residue from inside of the decontamination enclosure system and from the equipment decontamination/waste bag-out on a daily basis. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

2.13.5 Maintain floors in the clean room and airlocks as dry as possible to minimize slips and trips. Damp wipe all surfaces twice after each shift change with a disinfectant solution.

2.14 Cleanup Activities - General

2.14.1 The following work shall be done only after the applicable decontamination facilities have been constructed, the area has been isolated and can be maintained under negative air pressure as specified in the previous section, applicable background sampling has been conducted, and arrangements have been made for disposing waste at an acceptable site.

2.14.2 Start cleanup work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all cleanup work and do not resume until power is restored and negative air filtration units are operating again. Immediately notify Project Coordinator of any occurrence. Any torn or unsealed plastic sheeting shall be immediately repaired. As applicable, floor sheeting shall be replaced if damaged.

2.14.3 Wet Cleanup activity: After HEPA vacuuming, the subject surface shall be sprayed using an airless pump and wetting agents (amended water or removal encapsulant) to reduce fiber dispersal into the air (where applicable).

2.14.3.1 A fine spray of amended water shall be applied to reduce fiber release preceding the cleanup wiping activity of the asbestos dust in the cleanup area, where applicable.

2.14.3.2 Spray subject surface repeatedly during the cleanup work process to maintain a continuously wet condition.

2.14.4 Gross removal of dust and debris from contaminated material, material containers, and equipment shall be accomplished in the equipment decontamination room with wet sponging before leaving the cleanup work site.

2.14.5 General Waste - All general waste and trash left and found in place at cleanup work areas will be disposed as asbestos contaminated material.

2.15 Requirement for Specific Methods

2.15.1 Dust Cleanup: Pre-clean work areas where critical barriers will be applied. Construct and place critical barriers, impart a negative pressure differential between the work area and all surrounding areas, and put in place fully operational decontamination

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unit contiguous with the work area. HEPA exhaust will be to the outside of the building in all work areas. All surfaces within work areas shall be thoroughly HEPA vacuumed and wet-wiped so that no visible dust or debris remains. Consider that as per EPA requirements aggressive air sampling with a benchmark of 0.002 f/cc following NIOSH 7400/7402 and surface dust sampling with a benchmark of 5,000 s/cm² following ASTM D-6480 wipe method for hard surfaces or ASTM D-5755 for porous surfaces will be conducted at the end of works.

2.16 Requirement for Mini Enclosure (if applicable)

A small walk-in enclosure which accommodates no more than two persons may be used if the cleanup activity can be completely contained by the enclosure with the following specification and work practices.

Specifications:

- (a) The fabricated or job-made enclosure shall be constructed of 6-mils plastic or equivalent.
- (b) The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit.

Work Practices:

- (a) Before use, the mini-enclosure shall be inspected for leaks and smoke tested to detect breaches, and breaches sealed.
- (b) Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.
- (c) During use air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

2.17 Post Cleanup and Clearance Activities

2.17.1 Provide continuous cleaning (HEPA vacuuming and wet rags) as necessary. Do not permit accumulation of debris on workspace floor.

2.17.2 Do not perform dry dusting or dry sweeping.

2.17.3 Maintain the HEPA filtered NAMs in operation until the Project Coordinator authorizes the Contractor to remove the enclosure.

2.17.4 During decontamination of automatic sprinkler and smoke detectors, the PRPBA security office must be contacted for possible nuisance alarms. Care must be taken in the wiping down of the sprinkler heads and smoke detectors so as not to damage them.

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Smoke detectors must be vacuumed clean as directed by the Fire Alarm Contractor, Office of Physical Plant.

2.17.5 Preliminary Clearance Phase Sequence

The Contractor shall:

- (a) Be sure that all visible accumulations of asbestos-containing material and debris was removed.
- (b) If necessary, wet clean and HEPA-vacuum again the subject surfaces in the cleanup work area.
- (c) Clean all equipment (excluding that which will be needed for further cleaning phases) used in the cleanup work area and remove from cleanup work area via the Equipment Decontamination Enclosure as Section 2.8.6.
- (d) As applicable, remove the top layer (secondary barrier) of plastic sheeting, change all air filtration system pre-filters, and proceed with the second cleaning, as applicable.
- (e) Replace all pre-filters in air filtration air machines with clean filters. Clean with wet rags the exterior of all air filtration machines.
- (f) Notify the Project Coordinator and the EPA-OSC with at least 24-hour in advance to observe and determine completeness. Surfaces will be considered clean when free from dust, dirt, residue, film, or discoloration resultant from cleanup operations or other activities subordinate to these operations.
- (g) Perform no activity in cleanup work area for at least 12 hours in order to allow settlement of airborne fibers. No reduction in this settling period will be allowed.
- (h) Notify emergency respondents of the installment of any barriers at the work area.

2.17.6 Secondary Clearance Phase Sequence

The Contractor shall:

- (a) Notify the Project Coordinator and the EPA-OSC for observation to determine completeness of cleaning.

- (b) The Project Coordinator will perform a visual observation of the cleanup work area in general accordance with ASTM 1368, *Standard Practice for Visual Inspection of Asbestos cleanup Projects*.
- (c) If visual clearance is not attained, then subsequent re-cleaning will be required. This sequence will continue until visual clearance is attained.

2.17.7 Final Clearance Testing.

- (a) The Project Coordinator will test for the final clearance levels when areas have passed the visual clearance phase.

As per EPA requirement, aggressive air sampling with a benchmark of 0.002 f/cc following NIOSH 7400/7402 and surface dust sampling with a benchmark of 5,000 s/cm² following ASTM D-6480 wipe method for hard surfaces or ASTM D-5755 for porous surfaces will be conducted.

- (b) Re-clean the complete Level which do not comply with the specified final clearance level.
- (c) After area passes final clearance, dismantle Decontamination Enclosure Systems and thoroughly HEPA-vacuum and wet clean immediate areas. The NAMs should be turn-off, cleaned and moved to next applicable cleanup level.
- (d) Dispose of debris from cleanup activity operation, used cleaning materials, unsalvageable materials used for sturdy barriers, and any other remaining materials. Consider the materials to be contaminated, and dispose of accordingly.
- (e) The level area must be secured sealing elevator doors with plastic to prevent entry until all building will be finished.

2.17.8 Consider cleanup work areas and all other decontaminated and cleaned areas clean when:

- (a) All phases of cleanup have been completed and level of cleanliness is approved by the Project Coordinator and the EPA-OSC. Following clearance procedure relates to all building levels, including emergency stairways and elevator shafts as applicable:

Air Clearance

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Air samples will be collected and analyzed by NIOSH 7400 technique, if the result obtained is less than 0.002 f/cc then the air sampling clearance criteria will be met, if the PCM result is above 0.002 f/cc the sample media shall be analyzed by NIOSH 7402 TEM (PCMe) to determine if it meets the air clearance criteria.

- Air Sampling ≤ 0.002 f/cc by PCM
- Air Sampling ≤ 0.002 f/cc by TEM (PCMe)

Dust Clearance

- Settled Dust: $\leq 5,000$ s/cm² by TEM (ASTM D-6480 wipe method for hard surfaces)
- Settled Dust: $\leq 5,000$ s/cm² by TEM (ASTM D-5755 microvac method for porous surfaces)

Clearance samples will be collected as soon as as level cleanup activities were finished, following the sample approach for the initial Characterization sampling (with random areas as the Pink Book strategy) but not at the same sample location as follow:

Collect 9 air samples per building level using NIOSH 7400/7402 method. Once each level is cleaned the supply air system must be operated independently (as applied) prior to the start of clearance air testing to ensure that the clearance air testing includes sampling of air from the supply ducts.

Collect 9 samples per building level of fabric items or cloth chairs and office cubicle partitions plus floor carpets, using ASTM D5755-03;

Collect 9 samples of settled dust on backside of ceiling panels via method appropriate to the surface;

Collect 9 samples per building level of horizontal smooth non-cloth items and surfaces (desks, floor tiles, etc.) with the Wipe Method ASTM D6480 for asbestos-containing dust;

Collect at least 1 sample per each A/C Return located in the building levels (Levels P to 16 have 4 returns each one while Level 17th has two) and 1 sample per level A/C Supply (thru duct service door) using the wipe or microvac method (as appropriate) for asbestos-containing dust.

Collect 4 air samples in the Elevator Mechanical Room (located above Floor 17) using NIOSH 7400/7402 method; and 5 wipe samples of horizontal smooth non-cloth items and surfaces (equipment bases, floor, etc.) with the Wipe Method ASTM D6480 for asbestos-containing dust. The amount of samples is based in the EPA Dust sampling protocol at WTC where it recommends 3 samples for areas below 1,000 ft². The elevator room do not have major finishes (no ceiling tiles, no floor tiles, no furniture, etc.) and the surfaces are non-porous. The room is

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inaccessible to the general building occupants while infrequently accessed by the maintenance building employees. This sampling approach was used during the EPA-approved Characterization (background) Plan.

Collect 1 air sample and 3 wipe samples in each of the two re-cleaned south cars used for internal transport during clean up process.

Collect 4 air samples in Elevator shafts (2 at North and 2 at South) using NIOSH 7400/7402 method; and 5 wipe samples of horizontal smooth non-cloth items surfaces (equipment bases, floor, etc.; 5 samples at North shaft and 5 at South) with the Wipe Method ASTM D6480 for asbestos-containing dust. Surfaces are homogeneous in both shafts. Air samples will be taken at the pit level. The elevator mechanical room air sample results will be also considered as reference data for the shafts.

Stairways (*i.e.*, Northwest and Southeast) are independent functional units. They are composed of two levels of staircases per floor (piso). At least 1 wipe sample (using Wipe Method ASTM D6480 for asbestos-containing dust) and 1 air sample (using NIOSH 7400/7402 method) will be collected in each floor (piso) for a total of 9 wipe samples and 9 air samples per stairway (*i.e.*, per functional area). Based on the space and characteristics of each functional area, and the consensus of the technical team's professional judgement and experience, the number and location of samples is adequate.

If the clearance criteria is not met, the complete building Level or area (such as elevator cars, shaft, stairways, elevator mechanical room) shall be re-cleaned by the contractor and re-sampled by PRPBA following the above mentioned final sampling approach but in different locations and restricted to the subject random area of the level where any sample failed. Random areas are delimited as agreed during the develop of the sampling strategy using the Pink Book. This sequence will be repeated as necessary until the clearance criteria's are met.

2.18 Additional Measure: Re-Confirmation of Condition of Asbestos Ceiling Stucco and Implementation of Response Actions, as applicable

2.18.1 Asbestos containing ceiling stucco is still present in lobbies from levels 16, 12, 11, 10, 6, 5, 4, 2 and G.. Since the Building has not been occupied for approximately three months, as an additional measure, an accredited asbestos building inspector will re-confirm the actual condition of such ceiling stucco in the lobby of the foregoing levels. Depending of the re-confirmation results, the application of an approved bridging encapsulant or other regulatory approved asbestos response action may be applicable to the whole or sections of the ceiling stucco. The Contractor will implement the applicable response action prior to the commencement of the cleanup activities in the level. For the encapsulation response action, the Contractor must submit copies of the specification of the bridging encapsulant product to the Project Coordinator with a minimum of 48 hours prior to its application to the foregoing surface.

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2.18.2 Pre-Bridging Encapsulant Mock-up Test: Prior to beginning bridging encapsulant work, provide a sample area for approval by the Project Coordinator. Notify the Project Coordinator with a minimum of 48 hours in advance to schedule the test. Bridging encapsulant shall be applied using methods set forth in ASTM Specification P-189 "Specification for Encapsulants for Friable Asbestos Containing Building Materials".

2.18.3 Apply encapsulant only when environmental conditions in the cleanup work area are as required by the manufacturer's instructions. Prior to applying any encapsulant, ensure that its application will not cause the base material to fail and allow the encapsulated material to fall of its own weight or separate from the substrate. Prior to applying any encapsulant, ensure that its application will not cause the damage of materials, equipment of furnitures.

2.18.4 Apply encapsulant with an airless spray gun with air pressure and nozzle orifice or as otherwise recommended by the encapsulant manufacturer.

2.19 Containment Barrier Removal

2.19.1 Following area final clearance and lockdown encapsulation, as applicable, leave pressure differential units running as long as feasible during containment barrier removal.

2.19.2 Equipment, machinery, scaffolding, tools, etc., within the cleanup work area shall not be removed without first being thoroughly cleaned with amended water or in the case of delicate items susceptible to rust, an acceptable substitute.

2.19.3 After the cleanup work area is found to be in compliance, it will remain sealed until all other building areas and exits are also finished. Project Coordinator will conduct a final walkthrough and document results.

2.19.4 Before removal from the cleanup work area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6-mils polyethylene to prevent environmental contamination from the filters.

2.19.5 At the end of the project, the Contractor shall patch and paint and repair all damaged areas and restore them to their original, precontract condition.

2.20 Waste Disposal

2.20.1 The Project Coordinator reserves the right to restrict when containerized asbestos waste will be moved outside of the cleanup work area and pass through the building. Times chosen to move containerized asbestos waste in the building shall be during non-public hours and when limited staff is in attendance or under other appropriate conditions as determined by the Project Coordinator.

2.20.2 The asbestos waste that has been containerized, shall be transported out of the cleanup work area through the waste load-out enclosure as described in Section 2.8.9. As applicable, routes to the elevator, the elevator itself, and route to covered carts shall be lined with 6-mils polyethylene sheeting.

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2.20.3 For Amosite Fibers: If the material contains amosite fibers, evacuate air from disposal bags with a HEPA vacuum before sealing.

2.20.4 Water not disposed of with the asbestos-containing materials shall be filtered to remove asbestos fibers and debris before disposal into sanitary sewer.

2.20.5 Do not store containerized materials outside of the cleanup work area. Take containers from the cleanup work area directly to a sealed dumpster.

2.20.6 Bulk and containerized asbestos waste shall be packed, labeled, and transported according to DOT Regulations 49 CFR 173.216 and 49 CFR 173.240. All waste coming from the Cleanup Areas, plastic sheeting, tape, cleaning material, clothing, and all other disposable material or items used in the cleanup work area shall be packed into double bagged sealable 6-mils plastic bags or double containerized with one bag and one drum. The bags shall be marked with the labels required by OSHA 29 CFR 1910.1001 and/or 1910.1200, and 1926.1101.

2.20.6.1 The dumpster will be secured with chains and a lock during and after the cleanup activities; it will be also labeled with the proper asbestos signage.

2.20.6.2 If the asbestos waste can reasonably be expected to damage double bagged 6-mils plastic bags, the following barrel decontamination procedures shall be followed.

- (a) Line barrels with a 6-mils plastic liner to prevent leaking of contaminated material from the containers.
- (b) As bags are moved out through the decontamination system, wet wipe bags to remove all contamination from them before they are moved into an uncontaminated space.
- (c) Place bagged waste into appropriately labeled barrels for transport to landfill.
- (d) After bagged contaminated waste is placed in barrels, seal lids on barrels.

2.20.6.3 Minimum labeling required:

First Label:

=====
DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
=====

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Second Label: Provide in accordance with U.S. Department of Transportation Regulation on Hazardous Waste Marking. 49 CFR Part 172, Subpart D:

=====

"RQ ASBESTOS NA 2212". PROVIDE A "CLASS 9" LABEL, PER 49 CFR PART 172, SUBPART E.

=====

- 2.20.6.4 Notify Project Coordinator prior to removing each trailer or other waste transport from the jobsite.
- 2.20.6.5 Notify Project Coordinator not less than 48 hours prior to the proposed time of delivery of contaminated waste to the landfill. Owner may elect to observe this operation.
- 2.20.6.6 The Contractor shall transport the approved sealed dumpster to an approved waste disposal site.
- 2.20.6.7 Allow only sealed plastic bags or impermeable containers to be deposited in landfill. Leave damaged, broken, or leaking plastic bags in the impermeable container and deposit entire barrel in landfill.
- 2.20.6.8 Ensure that there are no visible emissions to the outside air from site where materials and waste are deposited.

2.20.7 Contractor shall submit a disposal certificate (manifest) from the EPA/EQB approved landfill confirming final disposal in accordance with EPA/EQB standards and regulations before final payment. Retain receipts from landfill or processor for materials disposed off. At completion of hauling and disposal of each load, submit copy of waste manifest, chain of custody form, and landfill receipt to the Project Coordinator.

2.21 Job Close-Out

2.21.1 The Contractor shall remove from the site all other debris and rubbish resulting from cleanup and disposal operations and the temporary construction of containment barriers and enclosures.

2.21.2 The Contractor shall use positive means to demonstrate to the Project Coordinator that any building utilities that were temporarily disabled are now in full service. Notify the Project Coordinator when disabled building ventilation, systems, electrical power, smoke detectors, building access/egress passages may safely be re-started or used.

2.21.3 The Contractor shall provides legible copies of all project waste manifest, air sampling (personal and ambient) reports, and daily notes to the Project Coordinator.

**** END OF SECTION****

APPENDIX I
Characterization Data Information

Levels G and P

As per EPA request under CERCLA, the PRPBA performed the final clearance for Floors G and P by air samples analyzed under Transmission Electron Microscopy (TEM) 40 CFR Part 763. All air sample results are less than EPA regulatory limit of 70 structures per mm².

Level P

EPA-confirmatory dust sample's result are as follow:

- 4 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 1 result is none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 2 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ 1 result is none detected;
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².

Level 2

As per EPA approved Characterization (background) sampling plan (EPA-CSP), for the Floor #2 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 8 results are none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 7 results are none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is <2.99 anthophyllite/chrysotile structures which is the Method Quantitation Limit and less than EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 3 (under construction)

As per approved EPA-CSP, for the Floor #3 following PRPBA sample analyses were received:

- Air samples were not collected because the area is under heavy construction and cassette (media) will become overloaded based in current sampling strategy (aggressive, 5-hour sampling time with high volume pumps)
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 6 results are none detected;
 - ✓ 3 of the samples are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 4 dust samples inside A/C return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 9 results are between 3 to 28 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm² .

Level 4

As per approved EPA-CSP, for the Floor #4 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and <0.001 f/cc
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 6 results are none detected.
 - ✓ 3 results are between 7 to 29 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm² .
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 8 results are none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755
 - ✓ all results are none detected.

Level 5

As per approved EPA-CSP, for the Floor #5 following PRPBA sample analyses were received::

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 7 results are none detected;
 - ✓ 2 results between 8 to 26 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm² .
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 6 (under partial construction)

As per approved EPA-CSP, for the Floor #6 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ all results are none detected.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ all results are none detected.
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ 7 results are none detected.
 - ✓ 1 result is 4 chrysotile structures but less than EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit and less than EPA reference benchmark of 5,000 str/cm².

EPA-confirmatory dust sample's result are as follow:

- 2 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 5 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm²

Level 7

As per approved EPA-CSP, for the Floor #7 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.002 f/cc or less by PCM and <0.001 f/cc by TEM.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 2 results are none detected
 - ✓ 2 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm2.
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 7 results are none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit and less than EPA reference benchmark of 5,000 str/cm2.
 - ✓ 1 result is 4 chrysotile structures but less than EPA reference benchmark of 5,000 str/cm2 .
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 8

As per approved EPA-CSP, for the Floor #8 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.002 f/cc or less by PCM and <0.001 f/cc by TEM.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 3 results are none detected
 - ✓ 1 result is 11 chrysotile structures and in exceedance of EPA reference benchmark of 5,000 str/cm2 .
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 6 results are none detected;
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit;
 - ✓ 1 result is 7 chrysotile structures but less than EPA reference benchmark of 5000 str/cm2
 - ✓ 1 result is 16 chrysotile structures and in exceedance of EPA reference benchmark of 5,000 str/cm2 .

- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ 8 results are none detected.
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit and less than EPA reference benchmark of 5,000 str/cm².

Level 9 (regulated area under construction)

As per approved EPA-CSP, for the Floor #9 following PRPBA sample analyses were received::

- 9 air samples were taken and analyzed by NIOSH 7400;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 9 dust samples in plenum were taken and analyzed by D6480;
 - ✓ all results are between 4 to 114 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 2 results are none detected
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 6 chrysotile/tremolite structures and in exceedance of EPA reference benchmark of 5,000 str/cm².

Level 10

As per approved EPA-CSP, for the Floor #10 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 3 results are none detected
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 8 results are none detected;
 - ✓ 1 result is 11 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous were taken and analyzed by D 5755;
 - ✓ 2 results are none detected.
 - ✓ 4 results are <3 chrysotile structures which is the Method Quantitation Limit but not in exceedance of EPA reference benchmark of 5,000 str/cm².
 - ✓ 3 results are between 4 to 6 structures but not in exceedance of EPA reference benchmark of 5,000 str/cm².

Level 11

As per approved EPA-CSP, for the Floor #11 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and <0.001 f/cc
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 4 results are none detected
 - ✓ 5 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 3 results are none detected
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 7 results are none detected;
 - ✓ 2 results are between 4 and 11 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous were taken and analyzed by D 5755;
 - ✓ all results are none detected.

Level 12

As per approved EPA-CSP, for the Floor #12 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.002 f/cc or less by PCM and <0.001 f/cc by TEM.
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 8 results are none detected;
 - ✓ 1 result is 4 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 3 results are none detected;
 - ✓ 3 results are <2.99 chrysotile structures which is the Method Quantitation Limit but not in exceedance of EPA reference benchmark of 5,000 str/cm².
 - ✓ 3 results are between 4 and 6 chrysotile structures but not in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 13

As per approved EPA-CSP, for the Floor #13 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and <0.001 f/cc.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 3 results are none detected
 - ✓ 1 result is <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected.
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 3 results are none detected;
 - ✓ 5 results are <2.99 chrysotile structures which is the Method Quantitation Limit but not in exceedance of EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 10 chrysotile structures but not in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 14

As per EPA-CSP, for the Floor #14 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 3 results are none detected
 - ✓ 1 result is 3 chrysotile/anthophyllite structures and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ 8 results are none detected;
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 8 results are none detected;
 - ✓ 1 result is 5 structures-chrysotile and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 15

As per EPA-CSP, for the Floor #15 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ 8 results are none detected and <0.001 f/cc
 - ✓ 1 result is <0.001 f/cc chrysotile;
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ 1 result is none detected
 - ✓ 2 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 3 chrysotile structures and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ 8 results are none detected.
 - ✓ 1 result is <3 chrysotile structures but not in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 7 results are none detected;
 - ✓ 2 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 16

As per EPA-CSP, for the Floor #16 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400/7402;
 - ✓ 8 results are none detected and <0.001 f/cc
 - ✓ 1 result is <0.001 f/cc chrysotile
- 4 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are none detected
- 9 dust samples in plenum were taken and analyzed by D 5755 or D6480;
 - ✓ 3 results are none detected;
 - ✓ 5 results are <2.99 chrysotile and/or anthophyllite structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 7 structures-chrysotile/anthophyllite and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 6 results are none detected;
 - ✓ 2 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 1 result is 3 chrysotile structures and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous surfaces were taken and analyzed by D5755;
 - ✓ all results are none detected.

Level 17

As per EPA-CSP, for the Floor #17 following PRPBA sample analyses were received:

- 9 air samples were taken and analyzed by NIOSH 7400;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 2 dust samples inside return ducts were taken and analyzed by ASTM D6480;
 - ✓ all results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
- 9 dust samples in plenum were taken and analyzed by D 5755;
 - ✓ all results are none detected;
- 9 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 4 results are none detected;
 - ✓ 2 results are <2.99 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².
 - ✓ 3 results are between 4 to 8 chrysotile structures and in exceedance of EPA reference benchmark of 5,000 str/cm².
- 9 dust samples from porous were taken and analyzed by D 5755;
 - ✓ 8 results are none detected.
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit but not in exceedance of EPA reference benchmark of 5,000 str/cm².

Elevator Machine Room

As per EPA-CSP, for the Elevator Machine Room following PRPBA sample analyses were received:

- 4 air samples were taken and analyzed by NIOSH 7400;
 - ✓ all results are none detected and 0.001 f/cc or less.
- 5 dust samples from non-porous surfaces were taken and analyzed by D6480;
 - ✓ 2 results are none detected;
 - ✓ 3 results are <2.99 chrysotile/actinolite structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².

Elevator shafts

For the Elevator shafts following PRPBA sample analyses were received:

- 2 air samples were taken and analyzed by NIOSH 7400;
 - ✓ all results are none detected and <0.001 f/cc.

Air Handler Units (Floor 17 and G)

- 8 dust samples in filters were taken and analyzed by D 5755;
 - ✓ 7 results are none detected;
 - ✓ 1 result is <3 chrysotile structures which is the Method Quantitation Limit but above EPA reference benchmark of 5,000 str/cm².

APPENDIX II

**Cleanup Sequence for Each Type of Work Area (See Proposed
Schedule in Appendix IV)**

Work Areas: South Elevator Shaft, Cabins (Cars) and Pits

(For the detailed procedure to clean this work area, please refer to Appendix III)

Work Area: Elevator Machine Room (located above Level 17)

Cleanup Sequence for All Surfaces

1. The area must be secured to prevent entry by unauthorized personnel as per Section 2.1.
2. Place applicable critical barriers as per Section 1.3.19 and 2.7.
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel in the work area will wear protective disposable suits and respirators as per Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - A decontamination unit and equipment decontamination/waste load-out as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of this room.
 - Walls will be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items, including but not limited to independent a/c units (console), located in this work area will be HEPA vacuumed and wet wiped, as they remain in the area. Porous items are not present in this room. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in areas where there are no electrical safety hazards created by the humidity or water presence.
 - The floors will be cleaned last. Wash thoroughly by heavy amended water wetted mops and then mopped dry.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as per Section 1.3.52
7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover areas will be disposed of as contaminated waste.
8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as per Section 2.8.5 and 2.14.4
9. Employees will then follow personal decontamination procedures as per Section 2.3.
10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.
11. The area must be secured sealing doors for access located at Level G (the doors to access all other levels have all ready been sealed) with plastic to prevent entry until receiving air and wipe sample results. If results are in compliance with the applicable asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the room will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 17

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2.
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level. A tunnel communicating the machine room (east and west) with the equipment and waste bag-out unit and the corresponding south elevator cars will be installed during this in order to subsequently reaccess the area without affecting the isolation and clearance of the area to implement the final cleanup of the two handling units located in the air handling machine room located at this level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2..
 - Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics

partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (*i.e.* partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by the Project Coordinator). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

12. After completing the cleanup and clearance of Level 9, workers will reaccess the air handling machines located at this level thru the tunnel left in place for such purposes and will proceed with the cleanup of the units in accordance with Section 2.6.2 and waste will be disposed as established in Section 2.20.

Work Area: Level 16

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e., exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e., wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 15

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft** section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e. partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 14

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e. partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 13

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e. partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 12

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 11

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2..
 - Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft. A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.

- Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft.** section. When finish each section, cleanup and put back these tiles to their original place.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 10

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 9

(Level under construction before May 20, 2012 and no asbestos containing ceiling stucco in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2.
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit and equipment decontamination/waste load-out as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal as Section 1.3.19 and 2.7
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e., wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence. Levels 3 and 9 are under renovation and/or construction activities prior to May 13, 2012. Ceiling tiles are not longer present in these two levels.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in the work area will be HEPA vacuumed and wet wiped, as they remain in the area.
 - Then, notify the Project Coordinator to determine if any porous (fabrics) items (i.e., partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner or will be disposed off as asbestos containing waste. The final disposal of porous items (if any) in Levels 3 and 9 will occur after consultation with and approval by Project Coordinator.
 - The floors will be cleaned last. Washed thoroughly by heavy amended water wetted mops and then mopped dry. The same procedure shall be done in the emergency stairways.
 - Carpets in Floors 3 or 9 (if any) will be removed and disposed off as asbestos containing waste.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4.

9. Employees will then follow personal decontamination procedures as Section 2.3.

10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level P

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e. partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 2

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 3

(Level under construction before May 20, 2012 and no asbestos containing ceiling stucco in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2.
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit and equipment decontamination/waste load-out as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal as Section 1.3.19 and 2.7
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e., wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence. Levels 3 and 9 are under renovation and/or construction activities prior to May 13, 2012. Ceiling tiles are not longer present in these two levels.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in the work area will be HEPA vacuumed and wet wiped, as they remain in the area.
 - Then, notify the Project Coordinator to determine if any porous (fabrics) items (i.e., partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner or will be disposed off as asbestos containing waste. The final disposal of porous items (if any) in Levels 3 and 9 will occur after consultation with and approval by Project Coordinator.
 - The floors will be cleaned last. Washed thoroughly by heavy amended water wetted mops and then mopped dry. The same procedure shall be done in the emergency stairways.
 - Carpets in Floors 3 or 9 (if any) will be removed and disposed off as asbestos containing waste.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4.

9. Employees will then follow personal decontamination procedures as Section 2.3.

10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 4

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 5

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 6

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 7

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e. partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Area: Level 8

(Level Occupied Before May 20, 2012 and no asbestos containing ceiling stucco)

Cleanup Sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1.
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, and clean fiberglass ladders.
4. All personnel at the work area will wear protective disposable suits and respirators as Section 2.2.3.
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9.
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums will be cleaned. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft** section. When finish each section, cleanup and put back these tiles to their original place and then proceed to next plenum section accordingly.
 - Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the

furniture will be cleaned and the furniture will be reinstalled in its original position.

- Then, porous (fabrics) items (i.e., partition, chairs, etc.) will be HEPA vacuumed.

Carpets will be cleaned with HEPA vacuums (and with a water extraction cleaner in Levels P and 14 after consultation with and approval by PRPBA-Project coordinator and PRPBA-IH). After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.

6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.

7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.

8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as Section 2.8.5 and 2.14.4

9. Personnel will then follow personal decontamination procedures as per Section 2.3.

10. Final clearance samples will be performed as per Sections 2.5.7 and 2.17.8.

11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Areas: Emergency Stairways (Northwest and Southeast)
(Each Stairway deemed a separate Work Area)

1. The area must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Place applicable critical barriers as Section 1.3.19 and 2.7
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop buckets, clean mist sprayers with amended water, clean fiberglass ladders, regular water pressure hose, suction pump/vacuum and/or any other equipment necessary for the collection of excess water.
4. Workers will wear protective disposable suits and respirators as Section 2.2.3.
5. The ground level decontamination unit and the equipment decontamination/waste load-out will be serving these two areas. The entrance to each stair pathway will be thru level G.
6. The cleanup work will proceed in the following order or sequence:
 - First, ceilings and walls will be washed from top to bottom.
 - As applicable, non-porous items (including, but not limited to doors, architectural components, outside parts of lamps, fire hose cabinets, etc.) in these work areas will be washed, HEPA vacuumed and/or wet wiped, as they remain in the area. Porous items are not present in these areas.
 - The floors will be cleaned last. Washed thoroughly and then mopped dry.
7. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
8. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mils plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover areas will be disposed of as contaminated waste.
9. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure located at ground level.
10. Workers will then follow personal decontamination procedures as Section 2.3.
11. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
12. The area must be secured sealing doors with plastic to prevent entry until receiving air and wipe sample results. If results are in compliance with the applicable asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the room will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Work Areas: North Elevator Shaft, Cabins (Cars) and Pits

(For the detailed procedure to clean this work area, please refer to Appendix III)

**Work Areas: Re-Cleanup and Re-Clearance of South Elevator Shaft,
Cabins (Cars) and Pits**

(For the detailed procedure to clean this work area, please refer to Appendix III)

Work Area: Level G

(Level under occupancy before May 20, 2012 and asbestos containing ceiling stucco present in lobby area)

Clean up sequence for all surfaces

1. The level must be secured to prevent entry by unauthorized personnel as Section 2.1
2. Shut down the A/C system and implement the Air Conditioning System Supply Air and Return Ducts clean up procedure provided as Section 2.6.2
3. Equipment to be used will be clean HEPA vacuum in operation conditions as established by the manufacturer with new filters, new mops, new cloths (rags), new 6-mil polyethylene plastic, clean mop bucket, clean mist sprayer with amended water, and clean fiberglass ladders.
4. Employees will wear protective disposable suits and respirators as Section 2.2.3
5. The cleanup work will proceed in the following order or sequence:
 - Place and test the required amount of negative air machines as established in Section 2.9
 - A decontamination unit as detailed in Sections 1.3.21 and 2.8 will be established in the entrance of each level.
 - An equipment and waste bag-out unit as detailed in Section 2.8.8 will be established in the entrance of each level.
 - Place critical barriers (others than on the returns which need to be cleaned prior to seal) as Section 1.3.19 and 2.7
 - Prior to start the cleanup activities, since the building has been closed for approximately three months, as an additional measure, ceiling stucco present in the elevator lobbies of the foregoing levels will be assessed by an accredited asbestos building inspector to re-confirm its actual condition. Depending of the assessment results the application of an approved encapsulant or other approved asbestos response action may be required as per Section 2.18.
 - The supply and returns ducts will be cleaned following the procedure described in Section 2.6.2. Then, ceiling plenums that do not contain asbestos stucco will be cleaned; plenums over the elevator lobbies which still have asbestos containing ceiling stucco will not be included to prevent potential disturbance of the material. Place a **20 ft x 20 ft** layer of 6-mil plastic over the equipment or furniture or floor that lay directly below the plenum work subarea to prevent that potential debris brings to them. The dimension of each plenum section to be clean at one time will not exceed **10 ft x 10 ft**. **A maximum of ten 10 ft x 10 ft (approx.) sections can be cleaned at one time in each area.** Mini-enclosures may be used if the plenum cleanup activity can be completely contained by the enclosure as specify in Section 2.16. Clean the plenum space and the tops of any object there (i.e. exterior of ducts, light fixtures, beams) with the HEPA vacuum. Also, the tops of light fixtures will be wet wiped. Wet methods (*i.e.*, wet cloths, wet brush, etc.) will be conducted in plenum areas where there are no electrical safety hazards created by the humidity or water presence.
 - Carefully move and put down the amount of ceiling tiles as necessary to reach all surfaces within each **10 ft x 10 ft**. section. When finish each section, cleanup and put back these tiles to their original place.

- Walls will then be HEPA vacuumed and wet wiped from top to bottom.
 - Then, non-porous items in these levels work area (including, but not limited to doors, windows, non-fabrics furniture, electronics, architectural components, non-fabrics partition, a/c grilles and diffusers, file cabinets, appliances, exposed documents) will be HEPA vacuumed and wet wiped, as they remain in the area. Heavyweight furniture such as desks, filing cabinets and sofas will be moved and cleaned. The floor footprint of the furniture will be cleaned and the furniture will be reinstalled in its original position.
 - Then, porous (fabrics) items (*i.e.*, partitions, chairs, etc.) will be HEPA vacuumed and cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator.
 - Carpets will be cleaned with a water extraction cleaner after consultation with and approval by Project Coordinator. After cleaning, 6 mils polyethylene plastic will be applied to high traffic areas to protect carpets from soiling. Water extraction cleaning will not be conducted if it would cause damage to the carpet.
 - Surfaces that are not cleaned by wet methods (wet wiping and water extraction cleaner) will be HEPA vacuumed two times.
 - Before proceeding with clearance sampling, workers will clean the air handling machines located at this level in accordance with Section 2.6.2 and waste will be disposed as established in Section 2.20.
6. All excess water used will be collected and disposed of as contaminated waste through a 5 micron filter as Section 1.3.52.
 7. Following completion of work, all rags, plastics, and mops used in the cleaning will be placed in double 6-mil plastic bags and disposed of as contaminated waste as per Sections 2.19.3 and 2.20. Plastic used to cover any area will be disposed of as contaminated waste.
 8. All non-disposable equipment (*i.e.*, HEPA vacuum, fiberglass ladder, mop buckets, mist sprayers) is to be passed out of the work area after the exterior surfaces be HEPA-vacuumed and washed with amended water in the Equipment decontamination enclosure as section 2.8.5 and 2.14.4.
 9. Workers will then follow personal decontamination procedures as Section 2.3.
 10. Final clearance samples will be performed as Sections 2.5.7 and 2.17.8.
 11. The level area must be secured sealing elevator doors with plastic to prevent entry until receiving air/wipe sample results. If results are in compliance with the asbestos regulatory limit for air in this project (<0.002 f/cc), and with the EPA reference benchmark for asbestos in dust ($<5,000$ str/cm²) then the level will be maintained sealed until all other building identified areas be cleaned. Otherwise, if after receiving laboratory results, additional cleaning is necessary, the above described sequence will be repeated as well.

Appendix III
Cleanup Sequence for Elevator Shaft Surfaces, Cabins (Cars)
and Pits

**Technical Memorandum for Cleanup of Elevator Cabins (cars), Shaft
Surfaces and Pits
Minillas Complex North Tower, Santurce, PR
(August 20, 2012)**

1.0 INTRODUCTION

This Technical Memorandum for the asbestos cleanup response action work plan of Building will be performed as an immediate action to mitigate the potential asbestos containing dust at the Elevators Cabins (cars), Elevator Shaft surfaces and Elevator Pits. The scope of work also includes the proper disposal of all waste materials. The cleanup of these areas is based on the rationale discussed with EPA regarding the migration and/or potential migration of dust and asbestos as a result of the piston effect of the elevators.

The objectives of this work plan therefore are the following:

- To immediately start cleanup operations of the Elevator Cabins (cars), Shaft surfaces and Pits.
- Implement engineering controls to isolate affected areas from non-impacted areas.
- Establish safety procedures for the response action.
- Perform air and surfaces sampling to demonstrate safety levels for re-occupancy.

2.0 SITE DESCRIPTION

There are two elevators shafts in the Building and each elevator shaft serves three elevator units. The two shafts are known as North Shaft and South Shaft and they don't interconnect with each other. The south elevator system serves the Ground level thru the 17th Floor and the north elevator system serves the Ground Level thru the 16th Floor. According to the Cleanup action plan, the South shaft will be cleaned, tested and cleared as initial activity prior to start the cleanup of the Building levels. This cleaned elevator shaft will be then used to connect the decontamination and waste load-out units per level. The North shaft will be cleaned at the end of the activities. The exhaust (*louver*) located in the elevator machine room (*i.e.*, above Level 17) currently does not have a filter in place. This is the only exhaust/ventilation that the elevator machine room has. In order to further ensure that containment is maintained especially during operation of elevators, in the event that NAMs are not adequate on start up, a HEPA filter will be placed in the mentioned exhaust prior to the commencement of any cleanup activities. The HEPA filter will be removed from this exhaust after all cleanup activities are completed and the work areas are cleared.

2.1 Sampling of Elevator Cabins (Cars) for Occupancy

Prior to use of the cabins, 1 air sample and 3 wipe samples need to be collected for clearance in each of the 6 elevator cabin (cars). The two south elevator cabins (cars) need to be cleaned and cleared first as they will be used for internal transport during clean up. These two cars must be re-cleaned and re-cleared at the end of the whole clean up process

3.0 ELEVATORS AND ELEVATOR SHAFT SURFACES PROCEDURES

Isolation of Clean up Work Area

All the elevators opening doors, at both sides (north and south) have been and continue be sealed at each floor of the building (except the two south car doors to be used for internal transport during clean up). It has been estimated that there are 50,000 ft³ of air volume at each elevators shaft. To achieve four air changes per hour at least 2 HEPA filtered NAM's will be necessary during the cleanup process per shaft. Even though, the equation recommends a maximum of 2 HEPA filtered NAM's to achieve the four air changes due to the layout of the shafts 3 NAM's will be installed per shaft. The additional concurrent operation equipment redundancy will increase the amount of air that really need to be handled by the NAM's. The following procedure will be followed to maintain a sustained four air changes per hour in the entire shaft: the NAM's will be located at the ground level, three per shaft, and the exhaust will be filtered out the building. There are ventilation grilles for the shafts at the 17th floor and outside air will be drawn in. The NAM's will be installed at the corner or center elevator doors and any other elevator door will be utilized to access the elevator shaft and pit.

The pressure differentials across the NAMs need to be closely monitored during start up cleaning of the elevator shaft to ensure that the operation of the elevator cabins (cars) do not cause pressure fluctuations that the NAMs cannot handle. If this occurs additional NAMs will be required. The Contractor and the Project Coordinator will perform regular smoke tests within the containment to ensure negative pressure is maintained at all times.

Worker/Equipment Decontamination and Waste Load-Out Enclosures (DECON Unit)

Worker/equipment decontamination enclosures will be provided at Ground Level where workers shall enter or exit the work area. The worker decontamination enclosure will be as established in Section 2.8 of the work plan. Asbestos-contaminated waste that has been containerized will be transported out of the cleanup work area through the separate waste load-out enclosure.

Final Clearance Sampling

Allow surface to dry and proceed to collect 1 air samples (i.e., 1 at north shaft and 1 at south shaft) using NIOSH 7400/7402 method; and 3 wipe samples of horizontal smooth non-cloth items and surfaces (equipment bases, floor, etc.) with the Wipe Method ASTM D6480 for asbestos-containing dust (i.e., 3 at north shaft and 3 at south shaft). Also, one air and three wipe samples need to be taken for clearance in each of the 6 elevator cars. The amount of samples is based in professional judgment and actual conditions.

3.1 ELEVATORS AND SHAFTS PROCEDURES

3.1.1 Interior Elevators Cabins (cars) Clean-up:

Review of HEPA Filter

The condition of the HEPA filter placed in the exhaust (*louver*) located in the elevator machine room (i.e., above Level 17) in preparation for the commencement of cleanup activities will be

confirmed. The HEPA filter will be removed from this exhaust after all cleanup activities are completed and the work areas are cleared.

Removal of debris:

All debris located at the site will be double bagged. The double bag procedure will consist of wetting the surfaces and debris with amended water (water with dish washing soap) before using an inner bag (3mil contractor bag) to isolate the debris. Utilizing the goose neck technique the bag will be secured with tape. After the inner bag is secured a 6 mil plastic bag with printed Asbestos lettering and proper labeling will be used as the outer bag, the bag will also be closed and secured by utilizing the goose neck technique and tape. The bag will be inspected for punctures before it is placed at the secured dumpster. Debris that could possibly break or puncture the bags will be wrapped in 6 mil plastic and secured with tape. A second layer of plastic will be used to further secure the debris and will be properly labeled including asbestos warning stickers, and carefully placed in the secured dumpster. This debris could be, but is not limited to sharp objects, wood, plastics, and solid material that cannot be decontaminated on Site. All present exhausted HEPA Filters will be disposed as asbestos contaminated items or waste. The dumpster will be secured with chains and a lock during and after the cleanup activities; it will be also labeled with the proper asbestos signage.

Vacuum of Designated Areas:

All the surfaces in the interior of the elevators cabin will be vacuumed with a Wet/Dry Vacuum with HEPA filtering System. The HEPA vacuum filter system consists of a primary certified absolute filter, a double layer intermediate micro filter and a totally enclosed two-ply disposable paper bag. The vacuum will be used to remove fine particulates from all the remaining surfaces in the area. These surfaces will include but are not limited to ceiling, walls, floors, fixtures and objects that cannot be moved or removed from the area.

Wet Cleaning:

Wet cleaning techniques will be utilized for the cleanup of the following components: floors, walls, doors, fixtures, etc. Wet methods (i.e. wet cloths, wet brush, etc.) will be conducted in areas where there are no safety hazards created by the humidity or water presence as previously described. The cloth will be wetted with water and squeezed to remove excess water that can cause a safety hazard. Preventive measures when cleaning horizontal and vertical surfaces will be taken while wipe cleaning is swept over the surfaces to avoid release of collected fibers from the cloth. The cleaning crew will wet-wiped surfaces where dust accumulation is visible and where HEPA vacuuming techniques were not able to achieve its purpose. The walls, where necessary, will be wet cleaned from top to bottom. After cleanup the cloths, mops or any other material utilized will be disposed as asbestos containing waste.

3.1.2 Elevator Shafts, Elevator Cabins (Cars)and Pit Cleanup:

Movement thru the shaft, when necessary, will be performed utilizing the elevators as working platform. The top of the elevators currently has barriers (rail guards) to prevent falls. Therefore no additional barriers will be necessary . The operation of the elevator will be conducted by a certified elevator specialist, HAZWOPER trained, provided by Deya Elevators,

the company in charge of the maintenance of the elevators at the Building. The safety procedure for elevator movement with personnel on top of it and/or with open door will be following Deya Elevators procedure for elevators maintenance and repairs.

Elevator shaft clean up:

Elevators shafts will be cleaned and decontaminated from the top down (17th to Ground) All interior shaft surfaces, including walls and elevator cables will be subject to a combination of vacuum and wet cleaning methods in order to remove all residual grease, dust and debris. Run off water will be collected in basins at the bottom level of each shaft work area. Collected water will be absorbed utilizing mops and rags. All used water collection materials will be loaded into double 6 mils plastic bags, properly labeled, processed through waste decontamination facility and disposed of as asbestos containing waste.

Please note that at no time and under no circumstances will any material, equipment, debris or items be dropped down or allowed to fall down any elevator shaft for any distance.

Removal of debris:

All debris located at the site will be double bagged. The double bag procedure will consist of wetting the surfaces and debris with amended water (water with dish washing soap) before using an inner bag (3mil contractor bag) to isolate the debris. Utilizing the goose neck technique the bag will be secured with tape. After the inner bag is secured a 3.8 mil plastic bag with printed Asbestos lettering will be used as the outer bag, the bag will also be closed and secured by utilizing the goose neck technique and tape. The bag will be inspected for punctures before it is placed at the roll-off. Debris that could possibly break or puncture the bags will be wrapped in 6 mil plastic and secured with tape. A second layer of plastic will be used to further secure the debris and will be labeled with asbestos warning stickers, and carefully placed in the secured roll-off. This debris could be, but is not limited to sharp objects, wood, plastics, and solid material that cannot be decontaminated on Site. All present exhausted HEPA Filters will be disposed as asbestos contaminated. The roll-off will be secured with chains and a lock during the removal activities; it will be also labeled with the proper asbestos signage.

Negative Air Machines HEPA Filtering:

The negative air machines HEPA filtration system will be installed at the Level G of the Building. Air will be forced in a vertical direction downward to force precipitation of dust and subsequent filtering thru the HEPA system. The shaft will be filtered continuously for the duration of the cleanup of the interior and exterior of the cabins and the pit and for at least 72 hours after the cleanup has been completed. The shaft shall remain under negative pressure during its clean up activity.

Based on corresponding calculations, the number of negative machine pressures exceeds the required. Additionally, the pressure differentials across the NAMs will be closely monitored by the Contractor and the Project Coordinator (thru smoke testing) during start up cleaning of the elevator shaft and every two hours after to ensure that the operation of the elevator cabins (cars)

do not cause pressure fluctuations that the NAMs cannot handle. If failure is identified during monitoring, the work will be stopped until applicable corrective actions are implemented, including adding additional NAMs and the Project Coordinator will notify the OSC immediately.

All personnel involved in the cleanup and/or operation of the elevators during cleanup activities will receive all required training. The top of the elevators currently has barriers (rail guards) to prevent falls. Therefore no additional barriers will be necessary. OSHA safety officers will provide daily safety briefing to workers, including the ones working in the cleanup of the elevators shafts, cabins and pits. Personnel will be trained in compliance with 29 CFR 1910.146 Working in Confined Space. Work inside the shafts will be considered as a Permit Required into Confined Space category work and OSHA's 29 CFR 1910.146 will be complied with. LOTO Procedures (Control of Hazardous Energy Sources) mandated under OSHA's 29 CFR 1910.147 will be followed. Also when personnel will be subject to fall hazards inside the elevators shafts they will be protected by using safety belts, harnesses, lanyards and lifelines attached to a secured anchor point. A body system (minimum crew of two workers performing entry to any work area including work inside the elevator shafts).

Additionally, due to potential electrical and fall hazards and to prevent possible damage to the elevators system a minimum intervention from cleanup personnel will be allowed at the interior of the shaft.

Vacuum of Designated Areas:

The cabins (cars) exterior roof & walls and the pits will be vacuumed with a Wet/Dry Vacuum with HEPA filtering System. The HEPA vacuum filter system consists of a primary certified absolute filter, a double layer intermediate micro filter and a totally enclosed two-ply disposable paper bag. The vacuum will be used to remove fine particulates from all the remaining surfaces in the area. These surfaces will include but are not limited to ceiling, conduits, walls, floors, and objects that cannot be moved or removed from the area.

Wet Cleaning:

Wet methods would be used only in situations where there are no safety hazards (i.e., electrical, entrapment, cuts, trip, slip and fall hazards) for cleanup personnel. Wet methods (i.e., wet cloths, wet brush, etc.) will be conducted in areas where there are no safety hazards created by the humidity or water presence as previously described. The cloth will be wetted with water and squeezed to remove excess water that can cause a safety hazard. Preventive measures when cleaning horizontal and vertical surfaces will be taken while wipe cleaning is swept over the surfaces to avoid release of collected fibers from the cloth. The cleaning crew will wet-wipe surfaces where dust accumulation is visible and where HEPA vacuuming techniques were not able to achieve its purpose. The walls, where necessary, will be wet cleaned from top to bottom. After cleanup the cloths, mops or any other material utilized will be disposed as asbestos containing waste.

Appendix IV
Preliminary Cleanup Schedule for Each Work Area

Appendix V

Layout Sketches

Appendix VI
Health and Safety Plan

**MINILLAS GOVERNMENT BUILDING (NORTH TOWER) ASBESTOS CLEANUP WORK PLAN
SITE-SPECIFIC HEALTH AND SAFETY PLAN**

Page **1** of **27**

**APPENDIX TO MINILLAS GOVERNMENT BUILDING (NORTH TOWER)
ASBESTOS CLEANUP WORK PLAN**

SITE-SPECIFIC HEALTH AND SAFETY PLAN

(Revision 3.0)

**EMERGENCY INFORMATION
EMERGENCY CONTACTS AND ROUTE TO HOSPITAL**

Emergency Contact Telephone No.

Fire Department – 911 and (787) 343-2330

Police Department – 911 and (787) 343-2020

State Emergency Office Management – 911 and 787-724-0124

Hospitals

San Juan Medical Plaza (Health Centre) – (787) 787-977-7575

Ashford Center - (787) 721-2160

Ambulance Dispatch System (787) 728-2610

US Environmental Protection Agency

Angel Rodríguez – Onsite coordinator – (787) 671-8093

PR Environmental Quality Board – (787) 767-8181

Puerto Rico Public Building Authority

Samuel Quiñones, P.E. – Project Coordinator (consultant) – (787) 374-6187

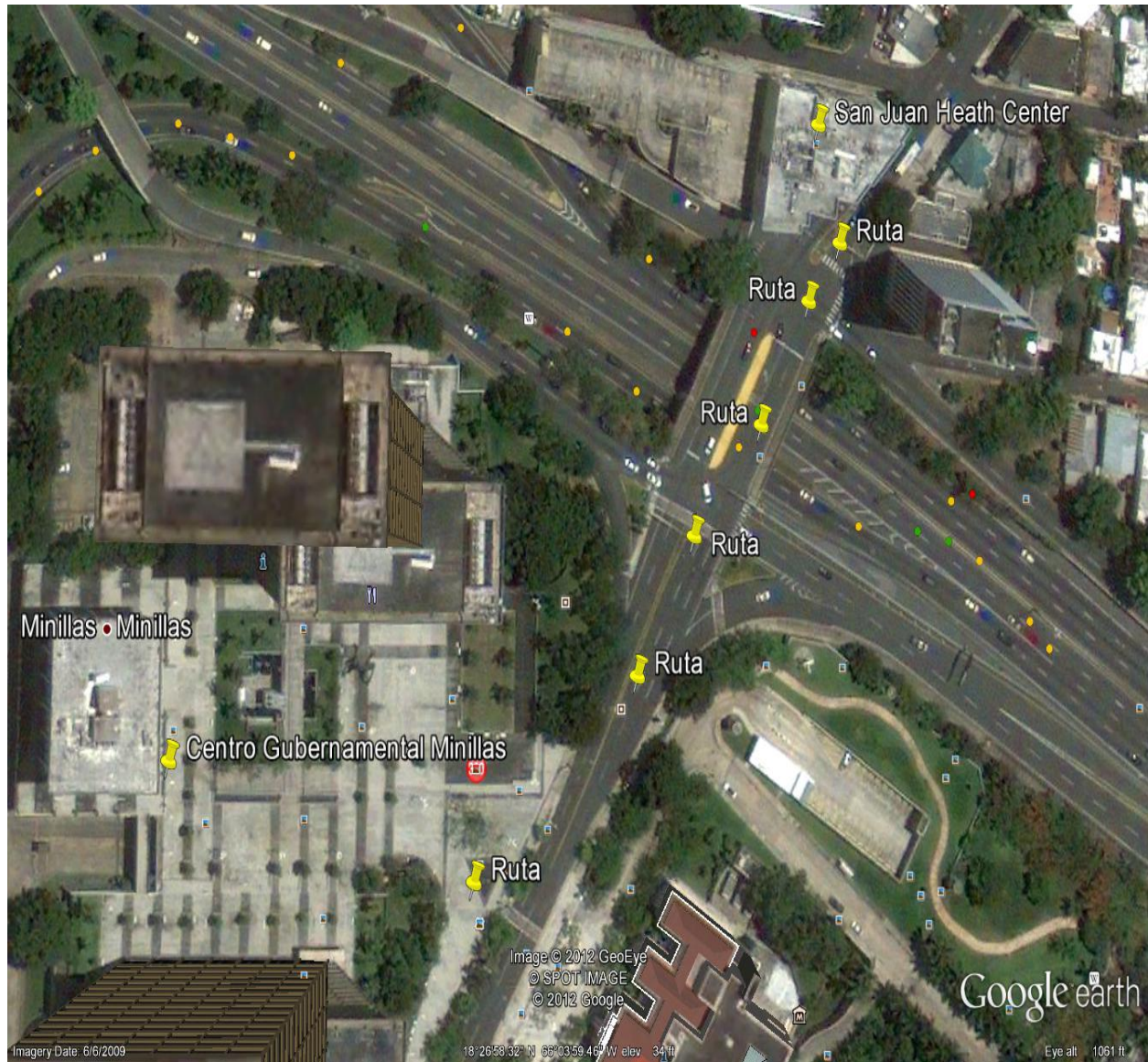
Norma Torres – Industrial Hygienist (consultant) – (787) 420-0220

Leonardo Torres – PRPBA (owner) representative – (939) 339-7015

**MINILLAS GOVERNMENT BUILDING (NORTH TOWER) ASBESTOS CLEANUP WORK PLAN
SITE-SPECIFIC HEALTH AND SAFETY PLAN**

Page **3** of **27**

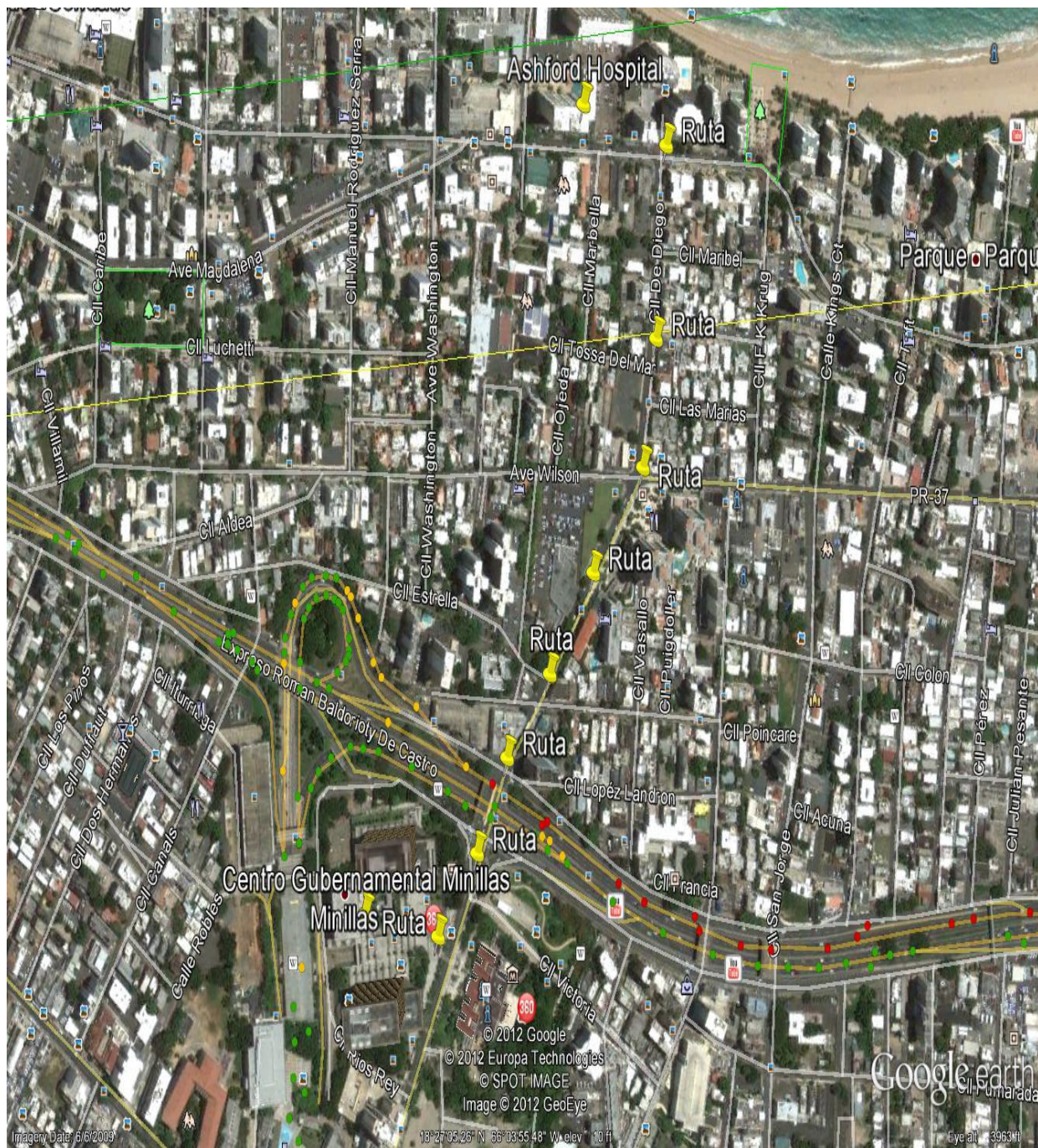
Map: Emergency Route to Hospital (Alternative 1) San Juan Medical Plaza (Health Centre)



**MINILLAS GOVERNMENT BUILDING (NORTH TOWER) ASBESTOS CLEANUP WORK PLAN
SITE-SPECIFIC HEALTH AND SAFETY PLAN**

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Map: Emergency Route to Hospital (Alternative 2) Ashford Center



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1.0 INTRODUCTION

This document addresses items specified under Occupational Safety and Health Administration (OSHA) Title 29 of the *Code of Federal Regulations* (CFR), Part 1910.120 (b), “Final Rule.” and 29 CFR 1910.1001. This health and safety plan (HASP) will be available to all on-site personnel who may be exposed to hazardous on-site conditions, including environmental contractors and subcontractor personnel, consultants and all site visitors and regulatory agency representatives. The site-specific health and safety provisions in this document have been developed for use during the Minillas Government Building (North Tower) Asbestos Cleanup Project.

The cleanup activities of this building have been occurring in two phases:

- Phase I included the first cleanup work and occurred in two sub-phases referred to as Phase IA and Phase IB. Phase IA consists of dust cleaning, abatement of identified asbestos-containing building materials (ACBMs) located in the **Level 9** (interior of the building) as necessary to complete the in process abatement and preliminary cleaning project. Phase IB then included the exterior cleanup efforts associated with **Ground level** of the building related to soil, concrete slab and other components located in the perimeter of this area by EPA-Kemron contractor.
- Phase II –includes the necessary interior cleanup work which consists of dust cleaning or removal for disposal of interior building components as necessary to achieve the cleaning of the areas. This systematic procedure will be applied to levels 1 to 8 and 9 to 17, elevator shafts, elevator machine room and emergency stairways.

This HASP covered the activities to be undertaken as part of Phase I. Also, this HASP covers the activities to be undertaken as part of the Phase II. This HASP is subject to review and revision based on actual conditions to be encountered in the field during site activities.

The Contractor shall be supported on this project by various subcontractors who shall provide specific services. Subcontractors shall:

- Provide air sampling
- Perform cleaning activities to remove dust

In addition, other subcontractors shall work on-site providing specific trades, for example plumbing and electrical work.

2.0 HEALTH AND SAFETY PLAN ENFORCEMENT AND PERSONNEL

This section describes responsibilities of project personnel, summarizes requirements for subcontractors and visitors who wish to enter the site during the cleanup efforts, and discusses HASP enforcement.

2.1 PROJECT PERSONNEL

The following personnel and organizations are associated with planned activities at the site. The organizational structure will be reviewed and updated as necessary during the course of the project.

Owner (PR Public Buildings Authority-PRPBA) Representatives:		
Name/Title	Responsibility	Telephone No.
Samuel Quiñones (or his authorized representative)	Project Coordinator (consultant) in charge of auditing cleanup activity process	(787) 374-6187
Norma Torres (or her authorized representative)/ Industrial hygienists	Consultant in charge of final interior sampling for re-occupancy	(787) 420-0220
Mr. Leonardo Torres	PRPBA (owner) representative	(939) 339-7015

Vanguard Caribe-Asbestos Abatement Company Representatives:		
Name /Title	Responsibility	Telephone No.
Héctor Oquendo	Superintendent	(787) 647-2034
Jorge Martínez	Competent person	(787) 463-1428
Héctor Velez	Competent person	(939) 630-4370
Altol Environmental	Personal (OSHA) and ambient air monitoring	(787) 835-4242
Miguel Montes and/or competent person	Site safety coordinator(s)	(787) 642-5992

All above representatives will be responsible for implementation and enforcement of the provisions of this HASP, as applicable, including completion of all pertinent reports.

2.1.1 Project coordinator and Field Supervisors

The project coordinator has ultimate responsibility for implementing the requirements set forth in this HASP. Some of this responsibility may be achieved through delegation to site-dedicated personnel (field supervisors or project coordinator's representative) who report directly to the project coordinator. The project coordinator shall regularly confer with site personnel on compliance with safety and health requirements.

Each contractor or subcontractor site safety coordinator and field supervisor will oversee and direct field activities and has day-to-day responsibility for implementing the HASP. The contractor superintendent will report directly to the Project Coordinator any health and safety-related issues.

2.1.2 Site Safety Coordinator

The asbestos abatement contractor site safety coordinator (SSC) will be appointed by the project coordinator and will be responsible for field implementation of tasks and procedures contained in this HASP, including personal air monitoring, establishing a decontamination protocol, and ensuring that all personnel working on site have signed a Daily Safety Meeting form and compliance agreement.

Each SSC (from contractors or subcontractors) will have advanced field work experience and be familiar with health and safety requirements specific to the project. The SSC will also maintain the Daily Site Log in compliance with current regulatory requirements.

2.1.3 Health and Safety Representative

Each contractor, subcontractor and consultants are responsible for the administration of their company health and safety program. The Project Coordinator will act in an advisory capacity to project coordinators and site personnel for project-specific health and safety issues.

2.2 CONTRACTORS OR SUBCONTRACTORS

Contractors and subcontractors will follow and adhere to the same guidelines stated in this document, however they should provide their own health and safety documentation for the protection of their workers. Puerto Rico Public Building Authority assumes no responsibility for the protection of others. Contractors and subcontractors must supply their own PPE, training, medical monitoring, and any other items necessary for compliance with OSHA and other pertinent regulations.

2.3 VISITORS

All site visitors will be required to read the HASP and sign the Compliance Agreement form (see Appendix A). Visitors will be expected to comply with relevant OSHA requirements. Visitors will also be expected to provide their own PPE as required by the HASP. Visitors who have not met OSHA requirements for training, medical surveillance, and PPE are not permitted to enter areas where exposure to asbestos fibers is possible.

2.4 HEALTH AND SAFETY PLAN ENFORCEMENT

This HASP applies to all site activities and all personnel working on the Minillas Government Building (North Tower) Asbestos Cleanup Project. HASP enforcement shall be rigorous. Violators of the HASP will be verbally notified on first violation, and the PRPBA Project coordinator will note the violation in a field logbook. On a second violation, the violator will be notified in writing, and the violator's supervisor will be notified. A third violation will result in a written notification and the violator's eviction from the site. The written notification will be sent to employee's supervisor file.

Personnel will be encouraged to report to their employer's site safety coordinator (SSC) any conditions or practices that they consider detrimental to their health or safety or that they believe violate applicable health and safety standards. These reports may be made orally or in writing. Personnel who believe that an imminent danger threatens human health or the environment are obligated to remove themselves from the area or the hazardous condition and warn all other personnel of the source of the danger. The hazardous condition or matter will be brought to the immediate attention of the Contractor/sub-contractors SSC and owner's project coordinator for resolution.

At least one copy of this HASP (and appendixes) will be available to all site personnel at all times. The Project coordinator will discuss minor changes (if any) in HASP procedures at the beginning of each workday at the daily safety meeting to be conducted by the abatement contractor SSC. Significant plan revisions must be discussed with the PRPBA project coordinator and administrative representative.

3.0 SITE BACKGROUND

The events of May 13, 2012, which caused the unauthorized disturbance of asbestos containing building materials in Level 9 of the Minillas Government Building North Tower, potentially allow dust and debris to enter into other Building areas.

Subsequent to May 13, 2012, the Environmental Protection Agency collect wipe asbestos samples determining that potential cross-contamination may exist inside the building. Because asbestos containing debris was deposited outside the building, the EPA determines CERCLA

applicability to the site. After EPA notifies their findings, the tower was closed as a prevention measure.

A cleanup activity project is proposed for this building and identified surroundings.

3.1 PLANNED ACTIVITIES

Activities to be performed during the Minillas North Tower cleanup include the following:

Level 9: Completion of on-going asbestos abatement project. (finished)

Ground level: Soil and concrete surfaces cleaning inside identified perimeter. (finished)

Outdoor Soil Sampling: After conducting the ground level cleanup, the abatement contractor sampling team will collect soil samples. (finished)

Indoor visual inspection: A team preliminary constitute from the project coordinator and the asbestos contractor superintendent will visually inspect the surfaces, components and equipment from each building floor to determine if may be cleaned or disposed-off as contaminated material.

Indoor cleaning: In accordance with the Project work plan, cleanup activities will be implemented in each building level or area.

Indoor dust sampling: Dust samples will be collected using wipe and/or microvac sampling techniques in all building levels.

Indoor air sampling: Air samples will be collected in all building levels.

These tasks are described in detailed in the submitted work plan which includes other planned activities.

4.0 EVALUATION OF SITE-SPECIFIC HAZARDS

Field activities and physical features of the site may expose field personnel to a variety of hazards. This section provides information on potential hazards related to site activities and the nature of effects from hazardous or regulated materials.

4.1 CHEMICAL HAZARDS

Asbestos and cleaning products are the potentially hazardous substances anticipated to be encountered during site activities. Asbestos exposure limits are:

OSHA PEL: 0.1 fiber/cm³ (8 hour TWA)
OSHA Excursion Limit: 1 fiber/ cm³ (30 minute exposure)
ACGIH TLV: 0.1 fiber/cm³
NIOSH REL: 0.1 fiber/ cm³
IDLH: Not Established

ACGIH American Conference of Governmental Industrial Hygienists, IDLH Immediately dangerous to life or health; cm³ Cubic centimeter; OSHA Occupational Safety and Health Administration; PEL Permissible exposure limit; ppm Part per million; TLV Threshold limit value; TWA Time weighted average

The primary route of exposure is inhalation; however, secondary potential routes of exposure include dermal (skin) contact and ingestion. Asbestos may also contaminate equipment, vehicles, instruments, and personnel. The overall health threat to workers from exposure to asbestos during this project is uncertain because (1) actual concentrations that personnel could be exposed to cannot be predicted until assessments and sampling activities begin, (2) the actual duration of exposure is unknown, and (3) the effects of low-level exposure to a mixture of chemicals or asbestos cannot be predicted. Background air sampling data shows that half face air-purifying respirators are accepted to start the proposed activities. Subsequent daily air monitoring will decide if respiratory protection needs to be upgraded.

Specific information on potential chemical hazards at the site will be available by means of Material Safety Data Sheets of the products or materials to be used during the cleanup activities. Because of the nature of asbestos, amended water will be used during cleanup activities while PPE and monitoring equipment can be decontaminated using soap and water.

The following steps will be taken to reduce the potential for inhaling asbestos:

- Personnel will implement procedures to minimize airborne asbestos fibers, such as wetting techniques.
- The level of Respiratory Protection Equipment will be “Negative pressure full or half face Respirators” but may be upgraded to “Full face Powered Air-Purifying Respirators” when air sampling results warrant, as determined by the Project coordinator.

4.2 PHYSICAL AND BIOLOGICAL HAZARDS

Physical and biological hazards associated with site activities present a potential threat to on-site personnel. Dangers are posed by slippery surfaces, unseen obstacles, poor illumination, use of ladders, and low overhead clearance.

Injuries resulting from physical and biological hazards can be avoided by using safe work practices (SWP). To maintain a safe workplace, the abatement contractor safety offices and the project coordinator will conduct and document regular safety inspections and will make sure that workers and visitors are informed of any potential physical and biological hazards (if any) related to the site. Physical and biological hazards that have been identified at this site include the following:

- Use of ladders and other equipment to access areas for cleaning or sample collection
- Trips, slips, fall in interiors, exterior and open areas
- Heat stress
- Fall hazard (from ladders and through elevations)
- Potential confined space entry – no permits are anticipated to be necessary for cleaning or sampling. If present, the workers must be in compliance with OSHA Confined spaces standard prior to enter these areas.

5.0 TRAINING REQUIREMENTS

All on-site personnel who may be exposed to hazardous conditions, including contractors, subcontractors, consultants and site visitors who will participate in on-site activities, will be required to meet training requirements outlined in 29 CFR 1910.120, “Hazardous Waste Operations and Emergency Response” and 29 CFR 1926.1101. Eight-hour HAZWOPER course will be allowed as compliance.

All personnel and visitors entering the site will be required to review this HASP and sign the Compliance Agreement form, and site workers will be required to sign the Daily Safety Meeting form. Personnel working inside the regulated areas will, at a minimum, be 8-hour HAZWOPER trained, and corresponding refresher training, respiratory protection trained, asbestos awareness trained, and have a copy of these certificates on their person at all times they are on-site performing work.

Additionally, a copy of a current respirator fit-test will be on-site for each employee performing work. If confined space issues arise during the project, OSHA Confined Spaces standard will be required prior to enter these areas. Contractor’s safety coordinator, subcontractors safety coordinator, environmental consultants and project coordinator will be trained on how to identify confined spaces, and what defines a permit required confined space.

Before on-site activities begin, site safety coordinator from the contractor and subcontractors will present a briefing for their personnel who will participate in on-site activities. The following topics will be addressed during the pre-work briefing:

- Names of the site safety coordinators and the designated alternate
- Site history
- Tasks
- Hazardous chemicals that may be encountered on site

- Physical hazards that may be encountered on site
- PPE, including type or types of respiratory protection to be used for work tasks
- Training requirements
- Action levels and situations requiring upgrade or downgrade of level of protection
- Site control measures, including site communications
- Decontamination procedures
- Emergency communication signals and codes
- Personnel exposure and accident emergency procedures (in case of falls, exposure to hazardous substances, and other hazardous situations)
- Emergency telephone numbers
- Emergency routes

Any other health and safety-related issues that may arise before on-site activities begin will also be discussed during the pre-work briefing. Issues that arise during on-site activities will be addressed during safety meetings to be held daily before the workday, shift begins or immediately (if urgent) and will be documented in the Daily Safety. Any changes in procedures or site-specific health and safety-related matters will be addressed during these meetings.

6.0 PERSONAL PROTECTION REQUIREMENTS

The levels of PPE to be used for work tasks during this project will be selected based on known or anticipated physical hazards; types and concentrations of contaminants that may be encountered on site; and contaminant properties, toxicity, exposure routes, and matrices. The following sections describe protective equipment and clothing; reassessment of protection levels; limitations of protective clothing; and respirator selection, use, and maintenance.

6.1 PROTECTIVE EQUIPMENT AND CLOTHING

Personnel will wear protective equipment when (1) site activities involve known or suspected contamination; (2) site activities may generate asbestos particulates; or (3) direct contact with hazardous materials may occur. The anticipated levels of protection selected for use by field personnel during site activities are listed in Section 4.1. Based on the anticipated hazard level, personnel will initially perform field tasks with half face mask respirators but may be upgraded to Full face “Powered air purifying respirators” if necessary.

Clothing required for level D and level C protection are described below.

• Level D (outside regulated areas)

- Work gloves, if applicable
- Boots with steel-toe protection
- Safety glasses or goggles, if applicable
- Hard hat
- Hearing protection (for areas with a noise level that exceeds 85 decibels on the A-weighted scale)

• **Level C**

- Disposable Coveralls (such as Tyvek or Polypropylene coveralls)
- Outer gloves (neoprene, nitrile, or other), if applicable
- Disposable inner gloves (latex or vinyl)
- Boots with steel-toe protection
- Disposable boot covers
- PAPR, Full- or half-face, air-purifying respirator with National Institute for Occupational Safety and Health (NIOSH)-approved cartridges to protect against organic vapors, dust, fumes, and mists. (Cartridges used for gas and vapors must be replaced in accordance with the change-out schedule described in the corresponding employer Respiratory Hazard Assessment).
- P-100 cartridges will be used with approval number TC-84A-2561.
- Safety glasses or goggles (with a half-face respirator only)
- Hard hat (face shield optional)
- Hearing protection (for areas with a noise level that exceeds 85 decibels on the A-weighted scale)

6.2 REASSESSMENT OF PROTECTION LEVELS

PPE levels will be upgraded or downgraded based on a change in site conditions or findings of the investigation. Hazards will be reassessed when a significant change in site conditions occurs. Some indicators of the need for reassessment are as follows:

- Commencement of a new phase of work, such as the start of a significantly different cleanup or sampling activity or work that begins on a different portion of the project site.
- Potential for release of asbestos
- A change in tasks during a work phase
- Extremes temperatures or individual medical considerations that would limit the effectiveness of PPE
- Discovery of contaminants other than were previously identified
- A change in ambient levels of airborne contaminants
- A change in work scope that affects the degree of contact with contaminated media

6.3 LIMITATIONS OF PROTECTIVE CLOTHING

PPE clothing ensembles designated for use during site activities have been selected to protect against contaminants at known or anticipated on-site concentrations and physical states. However, no protective garment, glove, or boot is entirely chemical-resistant, nor does any protective clothing protect against all types of chemicals. Permeation of a chemical through PPE depends on the contaminant concentration, environmental conditions, the physical condition of the protective garment, and the resistance of the garment to the specific contaminant. Chemical permeation may continue even after the source of contamination has been removed from the garment. The workers will be trained to avoid property areas where chemical hazards are present; therefore, the use of chemical workers resistant PPE is not anticipated.

All site personnel will use the following procedures to obtain optimum performance from PPE.

- When protective coveralls become contaminated, don a new, clean garment after each rest break or immediately after cleaning or sampling are completed.
- Inspect all clothing, gloves, and boots both before and during use for the following:
 - Imperfect seams
 - Non-uniform coatings
 - Tears
 - Poorly functioning closures
- Inspect reusable garments, boots, and gloves both before and during use for visible signs of chemical permeation, such as the following:
 - Swelling
 - Discoloration
 - Stiffness
 - Brittleness
 - Cracks
 - Punctures
 - Abrasions

Reusable gloves, boots, or coveralls that exhibit any of the characteristics listed above must be discarded. Reusable PPE will be decontaminated in accordance with procedures described in Section 10.0 and will be neatly stored in the support zone away from work zones.

6.4 RESPIRATOR SELECTION, USE, AND MAINTENANCE

Each contractor and subcontractor is responsible of their individual company Respiratory Protection Programs. Their personnel will be informed of the proper use, maintenance, and limitations of respirators during annual health and safety refresher training and the pre-work briefing. Any on-site personnel who will use a tight-fitting respirator must pass a qualitative fit test for the respirator that follows the fit testing protocol provided in Appendix A of the OSHA respirator standard (29 CFR 1910.134). Fit testing must be repeated annually or when a new type of respirator is used. If exposure to asbestos on this project is expected to exceed 10 times the OSHA PEL, a quantitative respirator fit-test must be performed for all workers wearing respirators.

Respirators are selected based on the assessment of the nature and extent of hazardous atmospheres anticipated during field activities. This assessment includes a reasonable estimate of employee exposure to respiratory hazards and identification of each contaminant's anticipated chemical form and physical state.

Air-purifying respirators will be used only when they can protect against the substances encountered on site.

Factors that would preclude use of level C and air-purifying respirators are as follows:

- Oxygen-deficient atmosphere (less than 19.5 percent oxygen)

- Concentrations of substances that may be immediately dangerous to life and health
- Confined or unventilated areas that may contain airborne contaminants not yet characterized
- Unknown contaminant concentrations or concentrations that may exceed the maximum use levels for designated cartridges documented in the selected cartridge manufacturer's instructions
- Unidentified contaminants
- High relative humidity (more than 85 percent, which reduces the sorbent life of the cartridges)
- Respirator cartridges with an undetermined service life

Use, cleaning, and maintenance of respirators must be described in each employer respirator program.

7.0 MEDICAL SURVEILLANCE

The following sections describe medical surveillance program, including health monitoring requirements, site-specific medical monitoring, and medical support and follow-up requirements. Procedures documented in these sections will be followed for all activities during the Minillas Government Building North Tower asbestos cleanup project.

7.1 HEALTH MONITORING REQUIREMENTS

All contractor and subcontractor personnel involved in on-site activities for this project must participate in a health monitoring program as required by 29 CFR 1910.120(f). Under this program, personnel working on this project must receive baseline and annual physical examinations consisting of the following:

- Complete medical and work history
- Physical examination
- Pulmonary function test
- Resting electrocardiogram
- Chest x-ray (required once every 3 years)

Asbestos project personnel and visitors that will enter to regulated areas will meet the medical monitoring requirements and Owner Project coordinator receives a copy of the examining physician's written opinion for each employee after post-examination laboratory tests have been completed.

This opinion includes the following information (in accordance with 29 CFR 1910.120[f][7]):

- The results of the medical examination and tests
- The physician's opinion as to whether the employee has any medical conditions that would place the employee at an increased risk of health impairment from work involving hazardous waste operations or during an emergency response
- The physician's recommended limitations, if any, on the employee's assigned work;

special emphasis is placed on fitness for duty, including the ability to wear any required PPE under conditions expected on site (for example, temperature extremes)

- A statement that the employee has been informed by the physician of the medical examination results and of any medical conditions that require further examination or treatment

All contractors and subcontractors must have health monitoring programs conducted by their own clinics in compliance with 29 CFR 1910.120(f) and 29 CFR 1910.1001. Any visitors or observers at the site will be required to provide records in compliance with 29 CFR 1910.120(f) before they can enter the site.

8.0 ENVIRONMENTAL MONITORING AND SAMPLING

Environmental monitoring or sampling will be conducted to assess personnel exposure levels as well as site or ambient conditions and to establish appropriate levels of PPE. The following sections discuss initial and background air monitoring, personal monitoring, ambient air monitoring, monitoring parameters and devices, use and maintenance of survey equipment. Site-specific air monitoring requirements and action levels are also provided.

8.1 INITIAL AND BACKGROUND AIR MONITORING

Initial air monitoring of a typical work area will be performed at the beginning of the field project to document airborne fiber levels in building areas.

Personal air monitoring will be required during all phases of this project to document airborne exposures. The assessments must be used to document typical exposures during specific types of field activities to establish the PPE level required during these activities.

8.2 PERSONAL MONITORING

Asbestos abatement contractor and subcontractors are responsible of their personnel air monitoring.

The workers occupied closest to a source of contamination have the highest likelihood of exposure to airborne contaminant concentrations that may exceed established exposure limits (see section 4.1). Therefore, the workers who are closest to a source of contaminant generation will be selectively monitored during site activities.

Personal monitoring will be conducted in the breathing zone and, when a worker is wearing respiratory protective equipment, outside the face piece. The breathing zone air will be monitored for workers working at select locations, such as in the presence of friable asbestos. Work that results in potential employee exposure to airborne asbestos above the prescribed permissible exposure limit (PEL) or short term exposure limit (STEL) requires an exposure assessment regulated under the OSHA reference method 29 CFR Part 1910.1001. The

determinations of employee exposure will be made from breathing zone air samples representative of the 8-hour TWA and 30-minute STEL for each employee work category. The PEL is 0.1 f/cc for the 8-hour TWA, and the STEL is 1.0 f/cc over a 30-minute period as set forth in 29 CFR Part 1910.1001 (j)(2)(iii).

The sampling pump flow rates will be between 0.5 liters/minute and 2.5 liters/minute when using a 25- millimeter cassette. Once this sample is analyzed, the results shall be used to calculate the average level of exposure during the complete work shift. The time-weighted average (TWA) results will then be used for comparison to the PEL and to evaluate compliance with permissible exposure limits as established by OSHA. They will also be used to dictate which type of respiratory protection is required to ensure that the PEL is not exceeded.

Personal air samples will also be collected and analyzed in the manner described above for comparison to the PEL and STEL. Sample filters will be analyzed using PCM methodology by laboratory personnel (1) trained in NIOSH 582 microscopy (or equivalent) courses and (2) participating in a quality control program meeting the requirements established in 29 CFR 1926.1101. The NIOSH method used for this analysis will be Method 7400. The PCM analytical method is designed to identify all fibers of specific size and shape characteristics but not to distinguish between asbestos and non-asbestos fibers. PCM sample results are reported in fibers per cubic centimeter of air (f/cc).

8.3 MONITORING PARAMETERS AND DEVICES

The following sections below briefly describe the use and limitations of instruments used to monitor for asbestos. All monitors will be calibrated in accordance with manufacturer recommendations prior to and subsequent to use for sampling purposes (pre-and post-calibration). Pre and post-calibration results will be averaged to determine the average flow-rate being drawn through the pump for a particular sampling period. Calibration data and other pertinent air monitoring data will be recorded in the field logbook.

8.3.1 Asbestos

Air monitoring will be daily conducted during the project to provide information on exposure and identify the need for PPE upgrades or downgrade. In addition, air monitoring will be conducted to make certain that asbestos is not being released to other areas than regulated.

8.3.2 Particulates

Friable asbestos is anticipated to be encountered during cleanup activities. Other particulates, such as mineral wool, fiberglass, and other insulating materials, may be encountered in project areas but are not known.

Particulate air monitoring is the process of measuring the fiber content of a known volume of air collected during a specific period of time. The acceptable procedure for airborne asbestos measurement for personal exposure monitoring is phase-contrast microscopy (PCM) using the OSHA reference method specified in Appendix A of 29 CFR 1926.1101. NIOSH Method 7400

is an equivalent and acceptable method for measuring airborne fiber levels in area samples. The NIOSH method will be used for initial employee exposure monitoring. The standard detection limit is <0.01 fiber/cc. If lower levels are detection is required, the sample volume and collection time period should be increased. Adjustments to sample volume and time should be selected so that a fiber density of between 100 to 1,300 fibers/mm² is obtained.

In both sampling methods above, any fiber with an aspect ratio (measure of length vs. width) of greater than 3 to 1 is counted as an asbestos fiber. In areas with significant amounts of fibers such as fiberglass, the PCM method may overestimate the number of asbestos fibers in the air, and thus the exposure to workers or area assessments. In this circumstance, a more selective method of asbestos identification will be employed, explained below.

The acceptable procedure for airborne asbestos measurement by transmission electron microscopy (TEM) is the method EPA specified in 40 CFR 763, Appendix A to Subpart E, Interim Transmission Electron Microscopy Analytical Methods. NIOSH method 7402 is the equivalent TEM method (not for AHERA). TEM sampling provides greater analytical sensitivity and can differentiate between asbestos and non-asbestos fibers.

TEM analysis of area samples will initially implemented during final clearance in this project. If consistently sample results are in compliance with permissible levels, samples may be analyzed only by PCM using NIOSH Method 7400.

8.4 USE AND MAINTENANCE OF SURVEY EQUIPMENT

All personnel using field survey equipment must have experience or training in its operation, limitations, and maintenance. Maintenance and internal or electronic calibration will be performed in accordance with manufacturer recommendations by personnel who are familiar with the devices before they are used on site. Repairs, maintenance, and internal or electronic calibration of these devices will be recorded in an equipment maintenance logbook. Results of routine calibration will be recorded on daily air sampling data sheets.

8.5 THERMAL STRESS MONITORING

Heat stress is a common and serious threat at hazardous waste sites. Periodic rest and liquid ingestion will be enforced for workers working at regulated areas.

9.0 SITE CONTROL

Site control is an essential component in HASP implementation. The following sections discuss measures and procedures for site control, such as on-site communications, site control zones, site access control, site safety inspections, and SWPs.

9.1 ON-SITE COMMUNICATIONS

Successful communication between field teams and personnel is essential. The following communication systems will be available during site activities:

- Cellular telephones or two-way radios

The hand signals listed below will be used by site personnel in emergency situations or when verbal communication is difficult.

Hands clutching throat Out of air or cannot breathe
Hands on top of head Need assistance
Thumbs up Okay, I am all right, or I understand
Thumbs down No or negative
Arms waving upright Send backup support
Gripping partner's wrist Exit area immediately

9.2 SITE CONTROL ZONES

The following site control zones will be established for each property and work task.

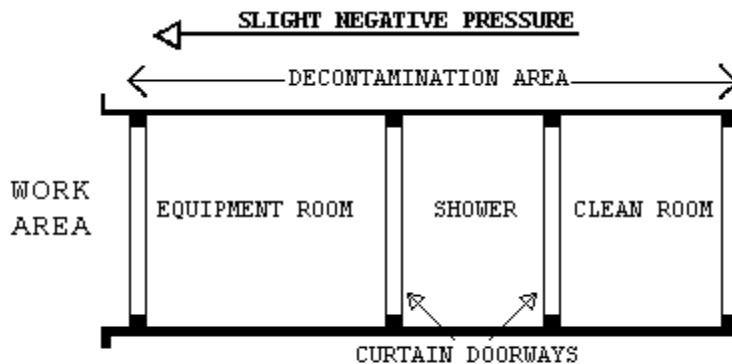
9.2.1 Zone 1: Exclusion Zone

An exclusion zone includes areas where contamination is either known or likely to be present or, because of work activity, has the potential to cause harm to personnel. In this project, these areas will be limited to identify areas of the Minillas Building North Tower and identified ground area.

Other non-authorized building occupants and visitors will be restricted from entering the exclusion zone while cleanup and sampling procedures be on-going.

9.2.2 Zone 2: Decontamination Zone

The Abatement Contractor will provide a Decontamination Unit consisting of a serial arrangement of connected rooms or spaces known as Changing Room, Air Locks, Shower Room, Air Locks and Equipment Room (see following diagram). An attached Decontamination Unit is required per each work area. These units will be the only means of ingress and egress for the Work Area.



9.2.3 Zone 3: Support Zone

A support zone may consist of any uncontaminated and non-hazardous part of the site, such as areas adjacent to decontamination zones. Cleanup procedures will immediately stop if visible suspect asbestos-contaminated debris is observed outside of the sampling or decontamination areas at any time during the project after the exclusion zone has been established. Debris and residue will be cleaned up using appropriate HEPA vacuuming or wet cleaning procedures before work recommences. Site visitors who do not meet training, medical surveillance and PPE requirements may enter the support zone upon approval by the Project coordinator unless visible suspect asbestos-contaminated debris is observed in the area.

9.3 SITE ACCESS CONTROL

Non-authorized people should be restricted from the immediate areas during cleanup and sampling procedures.

9.4 SITE SAFETY INSPECTIONS

The Site safety coordinator(s) and the project coordinator will conduct one site safety inspection for each work spent on-site to maintain safe work areas and compliance with this HASP. Results of the site safety inspections will be recorded on a Field Audit Checklist.

9.5 SAFE WORK PRACTICES

Various SWPs are applicable during this project. The following SWPs apply to the site:

- SWP 6-1, General Safe Work Practices
- SWP 6-8, Safe Electrical Work Practices
- SWP 6-9, Fall Protection Practices
- SWP 6-10, Portable Ladder Safety
- SWP 6-15, Heat Stress
- SWP 6-16, Cold Stress
- SWP 6-27, Respirator Cleaning Procedures
- SWP 6-28, Safe Work Practices for Use of Respirators
- SWP 6-29, Respirator Qualitative Fit Testing Procedures

10.0 DECONTAMINATION

Decontamination is the process of removing or neutralizing contaminants on personnel or equipment. When properly conducted, decontamination procedures protect workers from contaminants that may have accumulated on PPE, tools, rental vehicles and other equipment. Proper decontamination also prevents transport of potentially harmful materials to uncontaminated areas.

All workers will be required to adhere to personal decontamination procedures when leaving the Work Area and to put on a new disposable coverall, new head cover and a clean respirator each time anyone enters the Work Area.

10.1 EQUIPMENT DECONTAMINATION

Decontamination of all tools, sampling, PPE, and field equipment used during site activities will be required. Decontamination of equipment will be conducted inside regulated areas.

Decontamination procedures will consist of a water rinse or damp rag cleaning of equipment after each use.

10.1.1 PPE and Monitoring Equipment

Used, disposable PPE will be collected in sealable containers and will be disposed of in accordance with procedures described in the project specific work plan. All non-disposable PPE

such as hard hats, respirators, and any exposed clothing will be washed at the end of each workday, or as necessary depending on working conditions, to remove all potential for asbestos contamination. Monitoring equipment used during sampling will be cleaned with damp towels at the end of each workday, or as necessary to remove any contamination.

10.1.2 Sampling Equipment

Sampling equipment, such as pumps and dust sampling templates (when apply) will be decontaminated before and after each use as described below.

- Decontamination procedures for sampling equipment will depend on the sampling location. Equipment will, in most sampling situations, be decontaminated by wiping down with damp cloths or rags. Soap and water may be necessary when items are excessively dirty but are not mandatory.
- Sampling equipment will be wiped down with disposable paper towels or be allowed to air-dry before the next use.

11.0 EMERGENCY RESPONSE PLANNING

This section describes emergency response planning procedures to be implemented for the site. This section is consistent with PR local, state, and federal disaster and emergency management plans. The following sections discuss pre-emergency planning, personnel roles and lines of authority, emergency recognition and prevention, evacuation routes and procedures, emergency contacts and notifications, hospital route directions, emergency medical treatment procedures, protective equipment failure, fire or explosion, weather-related emergencies, spills or leaks, emergency equipment and facilities, and reporting.

11.1 PRE-EMERGENCY PLANNING

All on-site workers will be trained in and reminded of the provisions of Section 11.0, site communication systems, and site evacuation routes during the pre-work briefing and daily safety meetings. The site safety coordinators will review the emergency response provisions on a regular basis and will be revised, if necessary, to make certain that they are adequate and consistent with prevailing site conditions.

11.2 PERSONNEL ROLES AND LINES OF AUTHORITY

The Asbestos contractor's Site Safety Coordinator (SSC) has primary responsibility for responding to and correcting emergencies and forsaking by appropriate measures to maintain the safety of site personnel and the public. Possible actions may include evacuation of personnel from the site area. The SSC is also responsible for ensuring that corrective measures have been implemented, appropriate authorities have been notified, and follow-up reports have been completed.

Individual subcontractors are required to cooperate with the SSC, within the parameters of their scopes of work.

Personnel are required to report all injuries, illnesses, spills, fires, and property damage to the SSC and/or Project Coordinator immediately. The SSC and/or Project coordinator must be notified of any on-site emergencies and is responsible for following the appropriate emergency procedures described in this section.

11.3 EMERGENCY RECOGNITION AND PREVENTION

Section 4 lists potential on-site chemical hazards, and provides information on the hazards associated with the various tasks planned for the site. On-site personnel will be made familiar with this information and with techniques of hazard recognition through pre-work training and site-specific briefings.

11.4 EVACUATION ROUTES AND PROCEDURES

In the event of an emergency that necessitates evacuation of a work task area or the site, the project coordinator will contact all nearby personnel using the on-site communication systems discussed in Section 9.1 to advise the personnel of the emergency. The personnel will proceed along site roads to a safe distance upwind from the source of the hazard. The personnel will remain in that area until the SSC and/or Project coordinator or authorized individual provides further instructions.

11.5 EMERGENCY CONTACTS AND NOTIFICATIONS

The emergency information before Section 1.0 of this HASP provides names and telephone numbers of emergency contact personnel. This page must be posted on site or must be readily available at all times. In the event of a medical emergency, personnel will notify the appropriate emergency organization and will take direction from the SSC and/or Project coordinator. The project team will follow procedures discussed in Section 11.9 or 11.11.

11.6 HOSPITAL ROUTE DIRECTIONS

Ambulance system will be used for patient transportation in this project.

11.7 EMERGENCY MEDICAL TREATMENT PROCEDURES

A person who becomes ill or injured during work may require decontamination. If the illness or injury is minor, any decontamination necessary will be completed and first aid should be administered before the patient is transported. If the patient's condition is serious, partial decontamination will be completed (such as complete disrobing of the person and redressing the person in clean coveralls or wrapping in a blanket). First aid should be administered until an ambulance or paramedics arrive. All injuries and illnesses must be reported immediately to the SSC, abatement contractor site safety offices and/or Project coordinator.

11.8 PROTECTIVE EQUIPMENT FAILURE

If any worker in the exclusion zone experiences a failure of protective equipment (either engineering controls or PPE) that affects his or her personal protection, the worker and all coworkers will immediately leave the exclusion zone. Re-entry to the exclusion zone will not be permitted until (1) the protective equipment has been repaired or replaced, (2) the cause of the equipment failure has been determined, and (3) the equipment failure is no longer considered to be a threat.

11.9 FIRE OR EXPLOSION

In the event of a fire or explosion on site, fire department will be immediately summoned. The Minillas Government Fire Emergency Plan will be activated. A site representative will advise the fire department of the location and nature of any hazardous materials involved. Appropriate provisions of Section 11.0 will be implemented by site personnel.

11.10 WEATHER-RELATED EMERGENCIES

Work will not be conducted during severe weather conditions, including high-speed winds or lightning.

In the event of severe weather, field personnel will stop work, secure and lower all equipment, and leave the site.

11.11 EMERGENCY EQUIPMENT AND FACILITIES

The following emergency equipment will be available on site:

- First aid kit
- Fire extinguisher
- Site telephones, depending on location
- Mobile telephone
- Confined-space entry equipment, as necessary
- Fall protection equipment, as necessary

11.12 REPORTING

All emergencies require follow-up and reporting. An Incident Report must be completed and submitted to the SSC and/or Project coordinator within 24 hours of an emergency. The SSC and/or Project coordinator will review the report and then forward it to the corresponding employers. The report must include proposed actions to prevent similar incidents from occurring.

The employer must be fully informed of the corrective action process so that he may implement applicable elements of the process at other sites.

**MINILLAS GOVERNMENT BUILDING (NORTH TOWER) ASBESTOS CLEANUP WORK PLAN
SITE-SPECIFIC HEALTH AND SAFETY PLAN**

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Appendix (available in site)

A. REPORTING FORMS

B. NIOSH ANALYTICAL METHOD 7400

C. NIOSH ANALYTICAL METHOD 7402

Attachment (Available on site)

MATERIAL SAFETY DATA SHEETS